1989 ANNUAL REPORT

National Energy Board

90-05403/

National Energy Board

31 March 1990

The Honourable Jake Epp, P.C., M.P.
Minister of Energy, Mines and Resources
Ottawa, Ontario

Dear Mr. Epp:

I am pleased to submit the Annual Report of the National Energy Board for the year ending 31 December 1989 in accordance with the provisions of section 133 of the National Energy Board Act, Revised Statutes of Canada, 1985, chapter N-7.

Yours sincerely,

R. Priddle,
Chairman

National Energy Board Profile

The National Energy Board is an independent federal regulatory tribunal that was created by an Act of Parliament on 2 November 1959. During the past 30 years, it has played an important role in the development of Canada's energy sector.

The Board's regulatory powers under the *National Energy Board Act* include the licensing of oil, natural gas, and electricity exports, the certification of interprovincial and international pipelines and designated interprovincial and international power lines, and the setting of tolls and tariffs for oil and gas pipelines under federal jurisdiction.

The *Act* also requires that the Board keep under review the Canadian supply of all major energy commodities, with emphasis on electricity, oil, natural gas, and the by-products derived from oil and natural gas, as well as the demand fo. Canadian energy in Canada and in export markets.

The Board also has specific responsibilities under the *Northern Pipeline Act* and the *Energy Administration Act*. In addition, Board inspectors have been appointed safety officers by the Minister of Labour to administer Part II of the *Canada Labour Code*.

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Chairman's Letter

In 1989, the National Energy Board completed 30 years' service in the public interest of Canada relating to energy regulation and the provision of energy advice.

The close of our third decade and the start of our fourth was marked by exceptional change in the Board's membership. After distinguished service as Members and Associate Vice-Chairmen, Dr. Livia Thur resigned in April 1989 with 12 years' service and Digby Hunt retired in August after completing his seven-year appointment. Then in November, Jack Jenkins, one of our Board's first employees, retired after a total of 30 years' service with the Board, 11 of them as a Member.

Newly appointed to the Board in 1989 were Anita Côté-Verhaaf of Montreal, Quebec; Martha Musgrove of Ottawa, Ontario; Céline Bélanger of Calgary, Alberta; and Roy Illing of Victoria, British Columbia; the latter two appointments became effective January 1, 1990. As well, Ken Vollman of Luseland, Saskatchewan was reappointed as a Temporary Member for a three-year term.

The National Energy Board now has nine permanent Members and two temporary ones, one part time, the other full time. There are no longer Associate Vice-Chairmen: the three positions which have existed since 1970 are proposed to be eliminated under pending legislation.

The Board's staff worked hard and effectively, again making an invaluable contribution to the conduct of the business of the Board. At year-end, the staff numbered just over 300.

Not all of the Board's decisions, whether approvals or denials, went unchallenged. Various parties took issue with Board findings and sought redress in forms ranging from applications to the Board for review, to appeals to the Federal Court, and even to submissions to Cabinet.

Such was the case with the decision, announced in October, to license the export of some ten exajoules of natural gas from the Mackenzie Delta area. Approval is an essential first step towards the commercial development of these resources. The Board is very conscious of the social and environmental concerns associated with that development, and is committed to doing its part towards avoiding and mitigating any adverse consequences that might arise from construction of facilities under its jurisdiction. Such consequences can, in the Board's view, best be identified and addressed in concrete terms as and when development proceeds to the next stage, that is, an application for pipeline facilities.

Nevertheless, in response to a letter from the Minister dated 8 February 1990, which asked the Board how it had complied, or would comply, with the requirements of the Environmental Assessment and Review Process Guidelines Order, the Board advised Mr. Epp that it would institute a formal environmental screening process for natural gas exports, to determine

whether, and to what extent, there are any potentially adverse environmental effects upstream and downstream of the Board's jurisdiction. This screening process was begun in early 1990 and applied to those licences approved by the Board in late 1989 (including those for Mackenzie Delta gas exports), that had not yet been approved by the Governor in Council, as well as to applications to be heard in the spring of 1990.

Parties also disputed the Board's decision, announced in November, to deny four out of seven applications for licences to export natural gas commencing November 1, 1990. The Board took these decisions, as it must, on the basis of the evidence before it and in pursuit of what it sees as the Canadian public interest. At the same time, the Board was aware of and concerned by, disagreements with some of the analytical techniques it uses in assessing gas exports applications. It therefore commenced a public hearing to review aspects of its Market-Based Gas Export Procedures. A report is expected to be issued in March 1990.

The attention attracted by high-profile decisions should not obscure the Board's record of dealing with a large volume of business in a timely and efficient manner. This record, which is the subject of much of this report, was maintained throughout the year.

Thus, the Board rendered several major toll decisions after conducting extensive public hearings; continued to monitor closely the tolls charged by the ten major pipelines under its jurisdiction, which generated some $2 billion in revenues during 1989; approved expansions of pipeline facilities having an aggregate value of $1 billion; dealt with an electricity export issue involving environmental concerns relating to generating-station emissions; and licensed the export of some 17 exajoules of natural gas, the largest aggregate amount ever approved by the Board in one year.

In the gas export licence proceedings, no Canadian buyers complained that they were unable to purchase gas on terms and conditions, including price, similar to those of the proposed export. The Board takes this as one indication that the licensed quantities are surplus to reasonably foreseeable requirements of gas for use in Canada.

This was the first year of operation of the Canada-United States Free Trade Agreement. In exercising its powers and performing its duties, the Board sought to give effect to the agreement, as by law it must.

The Free Trade Agreement has not had a perceptible effect on energy flows across the border. This accords with the Board's expectations. Prior to 1989, steps had already been taken in each country to give a market orientation to energy trade regulation. There were, therefore, no major barriers to be removed which would have had the effect of stimulating energy trade. The importance of the agreement for our energy trade is not in relation to its short-term effects, but to its impacts in the long run. It establishes a reasonably clear set of "rules of the game" and an institutional framework

which should give investors, producers and consumers in both countries enhanced confidence in expanding energy trade.

The Board's publications in 1989 included a second issue of the "Natural Gas Market Assessment", dealing this time with the period 1989-91. This assessment, which is part of the Board's overall monitoring of the Canadian gas situation, concluded that, although some constraints to the working of markets still exist, progress continued to be made towards increased competition. The report also expected that natural gas prices would be stable through 1991, with the exception of price fluctuations for certain categories of short-term transactions. Canadian consumers' natural gas needs were fully satisfied in 1989.

Just four years after the 1985 "Inter-governmental Agreement on Natural Gas Prices and Markets", the Canadian interprovincial gas market has been transformed from one almost wholly subject to government price regulation and dominated by one large seller, to perhaps the freest and most open gas market in the world. The Board has played a major role in opening up this market. In 1989 it applied similar open-access principles to the two largest-volume gas export pipelines, Alberta Natural Gas and Foothills.

Gas exports grew by over five per cent in 1989. Further export growth is constrained by the fact that pipelines are now for the most part operating at capacity and any additional large increase in sales must await capacity expansion, which is presently underway. At year-end, the Board had before it one of the largest-ever applications for pipeline expansion. This was by TransCanada PipeLines for 1991-92 facilities needed to meet growth of both domestic and export gas requirements.

This and other pipeline projects involve related facilities subject to United States' regulation. During the year, the Board enhanced its contacts with its American counterpart agency, the Federal Energy Regulatory Commission. The purpose of these regular contacts, at both the staff and Member levels, is to see to it that each body has a thorough understanding of the other's regulatory requirements and a timetable for dealing with cross-border energy issues.

The Board does not promote energy development. Its job is to receive applications and deal with them in accordance with its legislation in a manner which safeguards the Canadian public interest. However, Canada is a large energy consumer. Given a favourable economic climate, it is also a land rich in energy development possibilities. And it is located next to the world's largest energy market. When these circumstances combine to stimulate development, the Board sees it as its duty to ensure that projects under its jurisdiction receive prompt but thorough regulatory examination. This process of examination must of course ensure that all relevant environmental issues are properly addressed. To the extent that this regulatory activity has a favourable impact on economic efficiency, then it can contribute to income generation through the prudent development and marketing of energy resources, leading to employment opportunities across the country and ensuring that energy markets continue to be adequately supplied.

The oil market in 1989 functioned very satisfactorily to provide producers with adequate outlets and consumers with sufficient supplies. During the last six weeks of 1989, eastern Canada faced both record-breaking cold and a strike which affected water-borne oil movements. Nevertheless, supplies were maintained over the period, albeit in some instances at increased costs.

The net quantity of electricity exported in 1989 fell by 64 percent compared with the previous year. This is a consequence of rapid growth in domestic requirements and of generation constraints facing hydro-based Canadian utilities caused by low precipitation in successive years. Electricity exports are unlikely to rise until such time as new contracts for firm, long-term power are put in place and the related regulatory approvals obtained. The Board will be dealing with applications for exports of this sort in 1990.

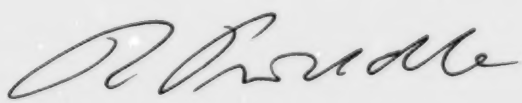
In 1989, the Board was positioning itself to deal with a number of accentuated concerns and upcoming issues.

Thus, in September, it issued a draft guideline requiring applicants for new facilities and certain energy exports to give early public notification of what they propose to do. The purpose of this guideline will be to promote early consultation between the public and proponents of energy projects on matters of public concern, particularly environmental matters. These concerns will be taken into account by applicants and the Board, and mitigative measures put in place as necessary.

The Board is anxious to carefully examine regulatory processes relating to possible northern oil and gas pipeline applications, with a view to ascertaining the most efficient possible approaches to regulation which will, at the same time, best identify and safeguard environmental and socio-economic concerns.

Finally, in response to a request by the Minister of Energy, Mines and Resources, the Board has initiated studies and consultations identifying measures that could enhance electricity trade in Canada, encourage greater cooperation between Canada's electrical utilities, and enable buyers and sellers of electricity to have commercial access to available transmission capacity through intervening provinces for wheeling purposes.

The Board enters the 1990s in good heart, with a renewed membership, a streamlined structure and a dedicated staff. We are committed to excellence in energy regulation and advice. We are an expert Board, ready to listen to representations, analyse evidence and take reasoned decisions in the Canadian public interest.



R. Priddle

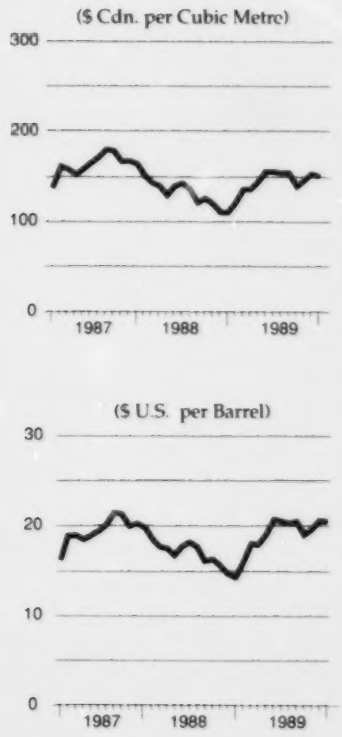
Energy Developments

Exports of oil and electricity decreased during the year, while natural gas exports increased.

International Oil Prices

In 1989, the West Texas Intermediate (WTI) crude price at Chicago, Illinois, and the f.o.b. price of North Sea Brent crude oil rose by about 20 percent over the 1988 level to average $US 19.55 and $US 18.20 per barrel, respectively. World crude oil prices rose rapidly in the first five months of the year - WTI rose from $US 14.25 in December 1988 to $US 21.25 in May 1989. Prices fell through the summer months, began to recover in August and, in December 1989, WTI averaged approximately $US 20.40 per barrel.

Figure 1
Average Price of West Texas Intermediate Crude Oil in Chicago



Strengthening world oil demand, coupled with reduced production levels in the North Sea and in the United States, effectively raised the demand for crude oil from the member countries of the Organization of Petroleum Exporting Countries (OPEC). World oil demand rose by about one million barrels per day in 1989 over 1988 levels - the less-developed countries accounted for nearly 60 percent of the increase. A number of accidents in the United Kingdom's North Sea lowered production by about 350 thousand barrels per day below potential through most of 1989, while American output declined for a fourth consecutive year.

Price stability was maintained in the face of increased demand for oil and reduced non-OPEC supply, because OPEC raised its output. OPEC began 1989 with quotas totalling 18.5 million barrels per day. In the first half of the year, demand was strong and OPEC production averaged about 20.5 million barrels per day. In June, OPEC quotas for the second half of 1989 were raised to 19.5 million barrels per day; however, Kuwait and the United Arab Emirates (UAE) refused to comply and, in the third quarter, they exceeded their combined quotas by about 1.5 million barrels per day. In November at OPEC meetings, the

quotas for the first half of 1990 were again raised - this time to 22 million barrels per day. In the fourth quarter, OPEC production reportedly averaged 23.7 million barrels per day.

Natural Gas Prices

Natural gas prices that are most relevant to Canada's international trade are those applicable in the United States. Although not representative of specific competitive circumstances, the following comments outline the overall North American gas price situation in 1988 and 1989.

Excepting seasonal fluctuations, the American wellhead prices of natural gas remained relatively stable throughout 1988 and 1989. In 1989, wellhead prices averaged $US 1.70 per million cubic feet (Mcf) for the year compared with $US 1.67 per Mcf for 1988.

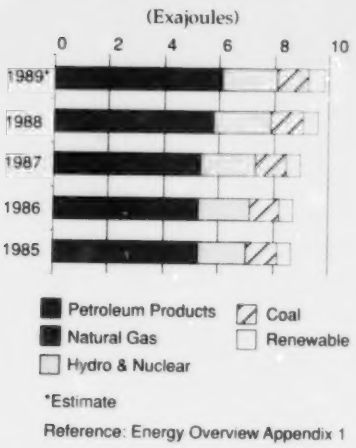
Prices fluctuated to a greater extent in market areas where Canadian exports compete with American supplies. As reported by the U.S. Department of Energy, city gate prices in California were up 6.5 percent in 1989 over 1988, to $US 2.77 per Mcf; in the Pacific northwest, they were down by approximately 5.0 percent to $US 2.37 per Mcf; in the central region, the city gate prices on average were down by 0.5 percent to $US 3.15 per Mcf; and in the northeast they were up by approximately 5.8 percent to $US 3.20 per Mcf.

Energy Production, Consumption and Trade

The year 1989, compared with 1988, was marked by a fall in domestic demand as well as a decline in export volumes. These two factors helped push Canadian energy production downward.

After growing 5.5 percent in 1988, primary energy demand increased by nearly 1.9 percent in 1989. There was a drop in the consumption of coal and electricity from hydro and nuclear sources and a rise in that of natural gas and oil products. A

Figure 2
Canadian Energy Consumption



*Estimate

Reference: Energy Overview Appendix 1

decrease in economic growth, and a rise in average temperatures in the east resulted in the smaller increase in primary demand in 1989.

Total oil exports fell in 1989 while imports grew. As a result, net oil export volumes decreased by about 40 percent. However, petroleum export prices rose by over ten percent while oil import prices remained unchanged; consequently, net petroleum export revenues fell by less than 25 percent in 1989.

After growing strongly in 1987 and 1988, natural gas exports grew by over five percent - from 1355 petajoules in 1988 to 1 429 petajoules in 1989. The average export price fell slightly as the appreciation of the Canadian dollar outweighed the effect of higher prices in the United States. Therefore, gas export revenues were virtually unchanged between 1988 and 1989. Over the same period, natural gas imports nearly doubled to 45 petajoules.

Table 1
Canadian Trade in Petroleum, Gas and Electricity
(Petajoules and Billions of Dollars)

	1987		1988		1989 (e)	
	PJ	$ Billions	PJ	$ Billions	PJ	$ Billions
Exports						
Petroleum (a)	1 877	7.0	2 304	6.5	2 128	6.9
Natural Gas	1 057	2.6	1 355	3.0	1 429	3.0
Electricity (b)	163	1.2	107	0.9	66	0.7
Total Exports	**3 097**	**10.8**	**3 766**	**10.4**	**3 623**	**10.6**
Imports						
Petroleum (a)	1 126	4.5	1 269	4.2	1 517	5.1
Natural Gas	4	(c)	24	0.1	45	0.1
Electricity (b)	2	(c)	10	0.1	31	0.3
Total Imports	**1 132**	**4.5**	**1 303**	**4.3**	**1 593**	**5.5**
Net Export Total	**1 965**	**6.3**	**2 463**	**6.1**	**2 030**	**5.1**

The numbers in this table have been rounded

e - Estimate
a - Includes all petroleum products and natural gas liquids. Excludes exchanges between Canada and the United States.
b - Electricity is converted at 3.6 petajoules per terawatt hour on the basis of the energy content of the electricity output. Excludes exchanges between Canada and the United States.
c - Less than $50 million.

In 1989, as in 1988, electricity exports dropped. A general increase in domestic loads coupled with low water levels contributed to a 38-percent decline in total export sale quantities. In respect of revenues, the decline is less important, 25 percent, resulting from a 21-percent increase in average price. The net quantity of electricity exported declined by 64 percent, largely because of increased purchases from American utilities.

Crude Oil and Petroleum Products

Production of Canadian Crude Oil

Crude oil production in Canada (including conventional light and heavy crude oil, bitumen, pentanes plus, and synthetic crude oil) averaged approximately 265 000 cubic metres per day in 1989, about three percent less than the 1988 level.

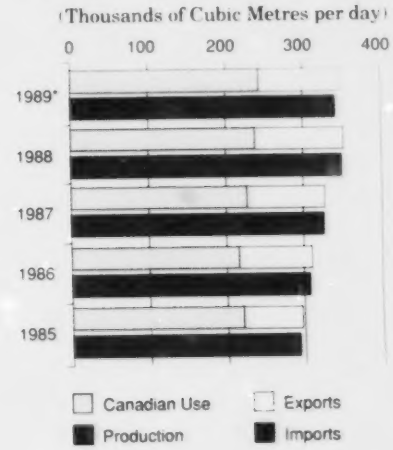
The supply of conventional light crude oil decreased by about six percent in 1989, to 147 100 cubic metres per day.

In 1989, synthetic crude oil production from the Syncrude and Suncor mining plants averaged about 32 500 cubic metres per day, three percent higher than in 1988. This was due, in part, to the completion of the capacity addition program at the Syncrude plant in late 1988. Synthetic crude oil production from the Newgrade upgrader in Saskatchewan averaged about 200 cubic metres per day because of operational problems.

Total pentanes plus production was approximately 18 400 cubic metres per day in 1989, of which about 12 000 cubic metres per day was used as diluent for heavy crude oil and bitumen. This represents virtually no change from the 1988 levels of pentanes plus production and diluent use.

The supply of blended heavy crude (including conventional heavy crude oil, bitumen and pentanes plus used as diluent) averaged a record high level of about 79 000 cubic metres per day in 1989, an increase of one percent over the 1988 level. The supply of blended heavy crude was expected to be further increased; however, anticipated developments and expansions of several bitumen projects were deferred as a result of crude oil price uncertainty.

Figure 3
Canadian Crude Oil and Equivalent
Supply and Disposition



* Estimate
Reference: Energy Overview Appendix 2

Oil Refining

In 1989, refinery throughput in Canada increased by three percent, reflecting higher domestic demand for the main petroleum products. Motor gasoline and middle distillates increased two and five percent, respectively, while heavy fuel

oil demand rose by 18 percent compared with the 1988 level. This large increase in heavy fuel oil usage occurred in the electricity generating utilities and in the pulp and paper industry in eastern Canada. Exports of main petroleum products fell by nine percent because of major refinery turnarounds in the Atlantic region, the source of most of Canada's product exports.

Canadian refineries purchased domestic crude oil at a rate of 165 300 cubic metres per day, a decrease of almost two percent compared with 1988; purchases of foreign crude oil rose by seven percent to 76 900 cubic metres per day.

Crude Oil Imports

In 1989, crude oil imports represented 30 percent of total refinery feedstock requirement in the country. On a regional basis, the Atlantic region depended totally on foreign crude oil supply, while Quebec imported 63 percent of its total requirements. Canada sources its imports from a variety of countries, including those within OPEC. Crude oil originating from OPEC countries reached 37 percent of total imports in 1989, up four percent from 1988. North Sea crudes amounted to 57 percent of total crude oil imports, down from 62 percent in 1988.

Crude Oil Exports

Figure 4
Light Crude Oil Export and Import Prices Netted Back to Edmonton*

* not adjusted for quality

Total crude oil exports, including synthetic crude oil, were 102 900 cubic metres per day, a decline from the level of 112 800 cubic metres per day recorded in 1988. The 1989 total comprised 47 200 cubic metres per day of light crude oil and 55 700 cubic metres per day of blended heavy crude oil. The estimated value of crude oil exports in 1989 was $4.4 billion compared with $4.0 billion in 1988.

The American mid-west continued to be Canada's most important market. Smaller volumes were shipped to the eastern seaboard and American Gulf Coast destinations from Montreal, and to the American west coast and Far East markets from Vancouver.

The largest export buyers of light Canadian crude oil in 1989 were Clark Oil, United Refining, Sun Refining and Conoco; for heavy Canadian crude oil, the largest foreign buyers were Koch Refining, Mobil, Amoco and Unocal. (Refer to Oil Appendix 5 for more details.)

Main Petroleum Product Imports

In 1989, imports of main petroleum products representing 11 percent of demand, averaged 22 000 cubic metres per day, an increase of 22 percent compared with 1988. The bulk of this

increase occurred in heavy fuel oil imports by the electricity generating utilities and the pulp and paper industry in the Atlantic region and Quebec.

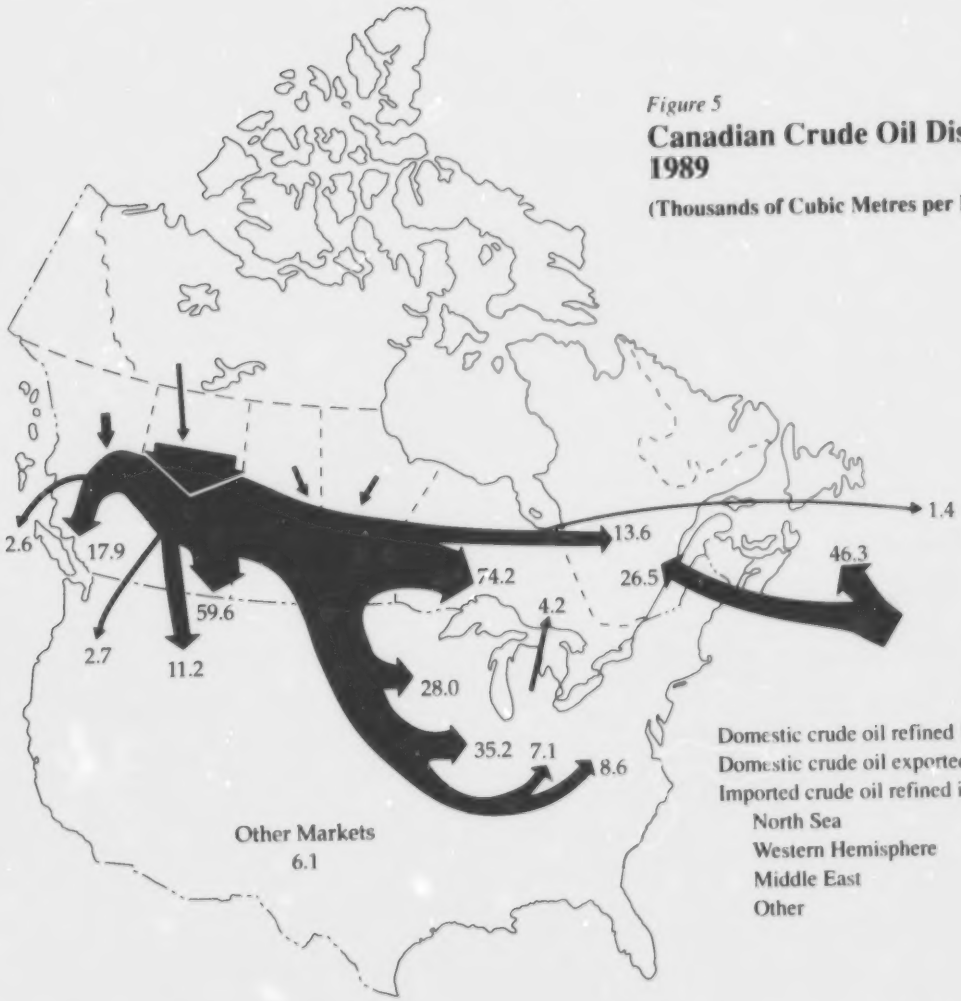
Main Petroleum Product Exports

In 1989, exports of main petroleum products and partially processed oil decreased by about seven percent to 30 000 cubic metres per day. As a result of firmer export prices for gasoline and heavy fuel oil, export revenues increased. Figure 6 provides the average export price for the main petroleum products for

Figure 5

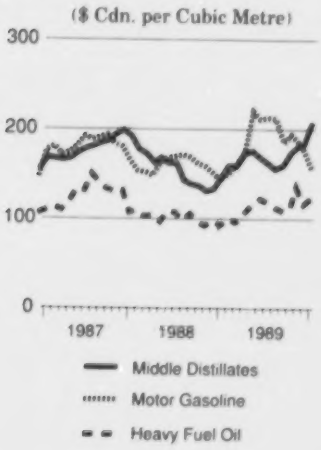
Canadian Crude Oil Disposition 1989

(Thousands of Cubic Metres per Day)



Domestic crude oil refined in Canada	165.3
Domestic crude oil exported from Canada	102.9
Imported crude oil refined in Canada	76.9
North Sea	43.5
Western Hemisphere	10.0
Middle East	9.8
Other	13.6

Figure 6
Main Petroleum Products
Average F.O.B. Export Price



the past three years. The rise in motor gasoline prices that occurred in 1989 is attributable to the market reaction to the Alaska oil spill and the damage inflicted on refineries by Hurricane Hugo.

The United States continued to be Canada's largest buyer of petroleum products, receiving almost 96 percent of our total exports. Exports of gasoline and heavy fuel oil from eastern Canada declined, reflecting major refinery turnarounds and increases in demand for heavy fuel oil in electricity generating plants and the pulp and paper industry. Export volumes by type of product and by region are shown in Table 2.

Table 2
Petroleum Product Exports, 1989
(Thousands of Cubic Metres)

	Motor Gasoline	Middle Distillates	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total[a]
Atlantic	1 772	2 543	448	865	728	6 356
Quebec	70	374	1	106	22	573
Ontario	405	867	109	915	66	2 362
Prairies	255	330	165	84	-	834
British Columbia	380	300	112	-	32	824
Total	**2 882**	**4 414**	**835**	**1 970**	**848**	**10 947**
Average Export Price ($/m³)	**190**	**165**	**170**	**112**	**b**	-

a - excludes propane, butanes, lubricants, greases, and asphalt.
b - cannot be released for reasons of confidentiality.

Oil Pipeline Capacity

During 1989, Interprovincial Pipe Line Company, a division of Interhome Energy Inc., operated at or near capacity. Apportionment was necessary in the early part of 1989. However, compared with the previous year, the overall incidence of apportionment was reduced, reflecting the decline in oil production. Trans Mountain Pipe Line Company Ltd. operated at or close to capacity throughout the year with apportionment becoming necessary only in March 1989.

Trans Mountain is continuing its assessment of the need for pipeline expansion but Interprovincial announced in November that it had shelved plans to add capacity. If expansion of either pipeline is proposed, it will be subject to Board approval.

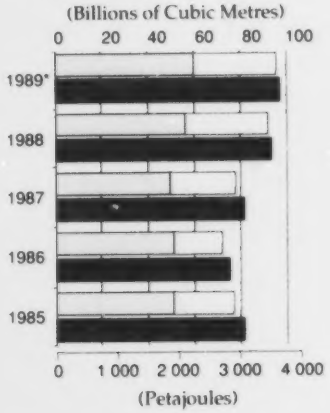
Natural Gas

Domestic Supply and Demand

Marketable natural gas production in Canada is estimated to have been 97.5 billion cubic metres in 1989, a four-percent increase over the 1988 level.

Imports of natural gas in 1989 were 1 077.5 million cubic metres, representing an increase of 57 percent over 1988. While the majority of American gas entered Canada near Windsor, Ontario via connections between the Union Gas Limited and the Panhandle pipeline system, a new link called the St. Clair Pipeline Ltd. near Sarnia, Ontario opened in December 1989. This is seen as improving the opportunities under deregulation and free trade to increase the import of American gas into Canada.

Figure 7
Natural Gas
Supply and Disposition



Canadian Use Exports
Production
Imports are too small to be shown

*Estimate
Reference: Energy Overview Appendix 3

Figure 8

Natural Gas Disposition 1989

(Billions of Cubic Metres)

Deliveries	
Canadian Use	59.8
Exports	37.9
Imports	-1.2
Total Deliveries	96.5

Major Export Points		
H	Huntingdon	5.0
K	Kingsgate	14.3
A	Aden	0.3
M	Monchy	9.0
E	Emerson	6.9
N	Niagara Falls	1.7
C	Cornwall	0.2
P	Philipsburg	0.2

In 1989, the Board issued 48 short-term import orders compared with 17 import orders issued in 1988 as local Ontario gas distribution companies prepared to take advantage of spot gas sales in the United States.

A detailed table of natural gas net imports into Canada by various companies is given in Gas Appendix 8.

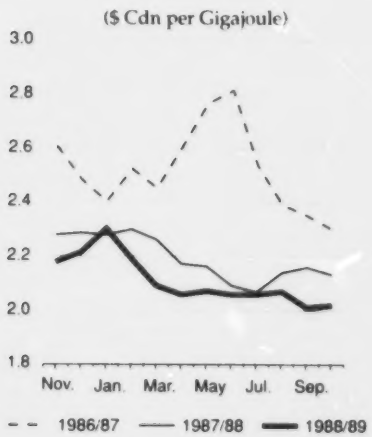
In 1989, the effects of gas industry deregulation continued to be felt. The increase in direct sales was sizable again this year, although smaller than in 1988.

In 1989, net sales of natural gas in Canada reached 57.2 billion cubic metres, a rise of more than 8.5 percent compared with 1988. The growth in net sales was especially substantial in British Columbia and Alberta.

Consumption in the residential and commercial sector grew because of a sharp drop in average temperatures in western Canada. The increase in industrial consumption was particularly significant in British Columbia and Alberta where natural gas was used to generate elecrticity.

Exports

Figure 9
Natural Gas Average Export Prices



Gas exports, all of them to the United States, rose by 5.4 percent in 1989, from 35.9 billion cubic metres to 37.9 billion cubic metres.

The average price received for natural gas sales to the export market fell, reflecting a strong Canadian dollar in 1989, which rose against the American dollar by approximately 3.7 percent. Export prices averaged $2.13 per gigajoule in 1989 compared with $2.18 per gigajoule during 1988, a decline of approximately 2.3 percent. In terms of American dollars, the Canadian export price was up approximately 1.1 percent, from $US 1.88 per million Btu in 1988 to $US 1.90 per million Btu in 1989, whereas the American wellhead price was up approximately 2.2 percent from $US 1.67 per million Btu in 1988 to $US 1.70 per million Btu in 1989. Overall, there was an increase of 0.3 percent in total gas export revenues in 1989 to $3.0 billion.

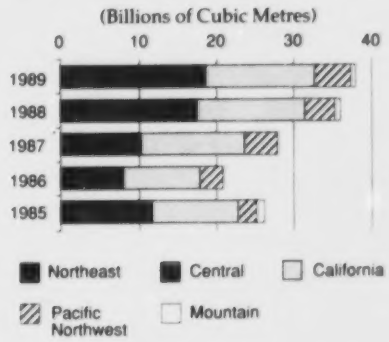
California accounted for 37 percent of Canada's 1989 gas export sales, the central region 40 percent, the Pacific northwest 13 percent, the northeast eight percent and the mountain region two percent (refer to Figure 10).

The central region was responsible for most of the year-over-year increase in export volumes and most of the remainder went to the Pacific northwest and mountain regions. In 1989, the Canadian share of the American gas market remained greater than seven percent of American consumption.

Access to American pipeline systems continued to improve in 1989 and by year-end, almost all major American pipelines were open-access carriers. This facilitated rapid growth in Canadian short-term sales, which grew from 11.3 billion cubic metres in 1988 to 13.8 billion cubic metres in 1989. Short-term sales accounted for about 37 percent of total natural gas exports in 1989, compared with 31 percent in 1988, and 22 percent in 1987.

At year-end, the outlook for 1990 export sales was positive; most interstate pipelines carrying Canadian gas were providing open access and gas export prices are expected to track the profile set in 1989.

Figure 10
Natural Gas Exports by Region



Natural Gas Pipeline Capacity

During 1989 there was little spare capacity on any of the major gas pipelines in Canada, except for a small amount available on the system of Westcoast Energy Inc. During the year, the Board approved two major facilities expansions by TransCanada PipeLines Limited and one by Foothills Pipe Lines Ltd. (The Board's decisions are more fully discussed in the section *Hearings and Inquiries*.) TransCanada has also filed another application for additional facilities to be constructed for 1991/92. The Board expects to hear the application in early 1990.

Natural Gas Liquids

The total net Canadian production of natural gas liquids in 1989 was 25.4 million cubic metres. Ethane production was 10.6 million cubic metres, propane production was 9.2 million cubic metres, and butanes production was 5.6 million cubic metres. These numbers represent an increase in production over 1988 of approximately three percent for ethane and propane and one percent for butanes.

Total natural gas liquids exports for 1989 were 6.8 million cubic metres. In 1989, ethane exports were 0.3 million cubic metres, propane exports were 3.8 million cubic metres and butanes exports were 2.7 million cubic metres. In 1988 there were no ethane exports. In 1989, propane exports rose by two percent and butanes exports declined by five percent compared with 1988.

Electricity

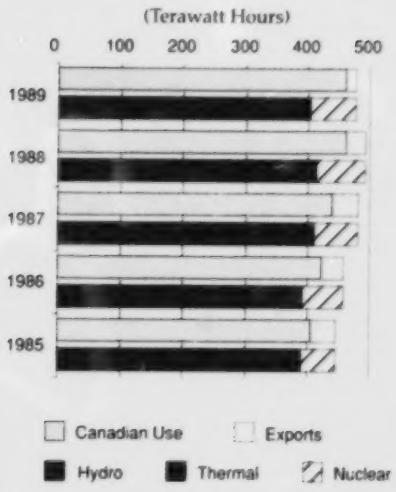
Generating Capacity

In 1989, Canada's total net generating capacity was approximately 98 000 megawatts, an increase of about 2 000 megawatts, or two percent, over 1988.

Generation and Consumption

Total generation of electricity in 1989 was an estimated 480 000 gigawatt hours, down two percent from 1988. Approximately 60 percent of the total was supplied from hydroelectric generation, 24 percent from conventional thermal generation and 16 percent from nuclear generation. Hydroelectricity's share of total generation was down slightly from the previous year because of lower water levels experienced by Canadian utilities. Total Canadian consumption in 1989 is estimated to have been 470 000 gigawatt hours, an increase of about one percent over 1988. Figure 11 shows the supply and disposition of electricity for the past five years.

Figure 11
Electricity
Supply and Disposition



Imports are too small to be shown

Reference: Energy Overview Appendix 4

Export Sales

In 1989, the electricity export market experienced a down-turn. Canadian utilities had very little surplus energy available for export, mainly because of low water conditions and increased domestic demand in some provinces. However, there was surplus capacity available to meet the American utilities' need for short-term peaking and reserve capacity. While interruptible sales dropped by 53 percent, firm sales remained relatively stable. Interruptible sales this year made up only 55 percent of the total amount exported, compared with previous years when the range was 70 to 80 percent. As a result, total sales were the lowest since 1976 and amounted to 18 462 gigawatt hours, a decrease of 38 percent from 1988. The associated revenue of $661 million represents a decrease of 25 percent from last year.

Canada became a net importer of electricity during the fourth quarter of 1989. Three major utilities, Hydro-Québec, Ontario Hydro and The Manitoba Hydro-Electric Board purchased energy to meet their system loads. The net export sale quantities fell by 64 percent compared with the previous year.

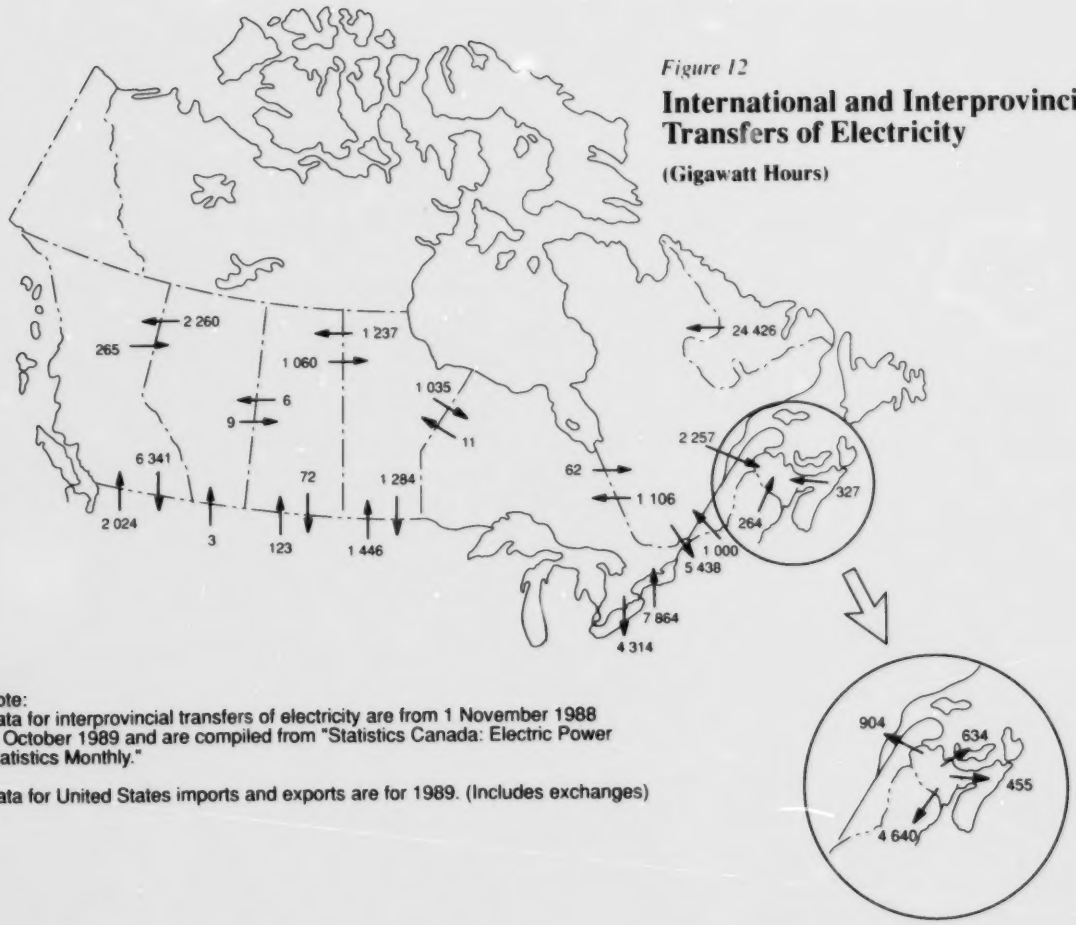
Figure 12 shows exports and imports in 1989 as well as interprovincial transfers for the 12 months ending 31 October 1989. Electricity Appendices 6 and 7 show the destination of all exports and imports by exporting province and importing region or state.

The New Brunswick Electric Power Commission's firm sales were unchanged from last year, while interruptible sales dropped by 19 percent. Increases in domestic loads and deliveries to neighbouring provinces resulted in less surplus energy available for export.

Figure 12

International and Interprovincial Transfers of Electricity

(Gigawatt Hours)



Note:
Data for interprovincial transfers of electricity are from 1 November 1988 to October 1989 and are compiled from "Statistics Canada: Electric Power Statistics Monthly."

Data for United States imports and exports are for 1989. (Includes exchanges)

Hydro-Québec's firm sales remained relatively stable, while its interruptible sales were down by 89 percent from last year. Low reservoir levels, resulting from a continuing low rainfall and snowmelt, prevented Hydro-Québec from being more actively involved in the export market.

Ontario Hydro, historically a major exporter, became a net importer in 1989. Purchases from the United States amounted to a record high 5.7 terawatt hours with an associated cost of $189 million. Its total export sales level dropped 55 percent from its 1988 level primarily because of two factors: an increased domestic load and provincial restrictions on acid gas emissions. In order to comply with new emission limits and to supply its own load, Ontario Hydro had to import electricity from utilities in Michigan, rather than use its own coal-fired generating stations.

As for The Manitoba Hydro-Electric Board, improved water conditions in 1989 contributed to a 70-percent increase in sales over 1988. However, this year's volume of 1 228 gigawatt hours is still below volumes that were exported a few years ago.

On the west coast, water reservoir levels were low on both sides of the border throughout most of the year, which resulted in a 33-percent decrease in exports from British Columbia. The provincial utilities had very little surplus hydraulic generation available for export; however, in response to an increased demand for energy in the United States, British Columbia Hydro and Power Authority exported energy from its Burrard natural gas plant. The Board authorized exports from this plant after B.C. Hydro obtained the required provincial environmental approvals. In past years B.C. Hydro's exports were principally supplied from hydro plants; this year only five percent of its exports were generated from hydro sources, while 38 percent were generated at Burrard. The remaining 57 percent were purchased from TransAlta Utilities Corporation of Alberta (28 percent generated from natural gas and 29 percent from Canadian coal) and resold in the United States.

Though hydro still remained the leading source of all electricity exported, its share, which in previous years comprised approximately 70 percent of all exports, dropped to 42 percent in 1989. Other fuels used to produce exported electricity were natural gas at 15 percent, nuclear at 12 percent, imported coal at eight percent, domestic coal at 11 percent, imported oil at six percent and domestic oil at two percent. The remaining four percent was electricity purchased from one American utilitiy and re-sold to another American utility.

Oil and Gas Activity and Reserves

Exploration and Development Activity

Upstream activity by the Canadian oil and gas industry was lower in 1989 than in 1988. This lower activity level can be attributed to:

- uncertainty about future oil and gas prices;
- termination of government incentive programs;
- the impact of mergers and takeovers; and
- the ongoing rationalization of producing interests and emphasis on cost reductions.

Investment in Crown lands is one of the leading exploration activity indicators. During 1989, land sale expenditures were well below last year's level, reflecting the lower bonuses paid for the leases. In 1989, the provincial and federal governments leased the mineral rights to 3.6 million hectares, a decrease of only two percent from the 3.7 million hectares leased in 1988. However, the average price per hectare in 1989 was $134, compared with $177 and $269 per hectare in 1988 and 1987, respectively. The price per hectare during 1989 fluctuated from an average of $165 per hectare in the first quarter to $118 per hectare in the last quarter.

The total amount spent on land sales throughout Canada in 1989 was 26 percent lower than in 1988. During 1989, the oil and gas industry spent $485.6 million on land sales, compared with $659.4 million in 1988 and $793.5 million in 1987.

The number of wells drilled decreased by approximately 39 percent, from some 8 950 wells in 1988 to about 5 470 wells in 1989. In 1989, there was a shift from oil exploration and development activity to gas exploration and development activity, attributable to improved market opportunities for natural gas and the stabilizing of gas prices.

Drilling rig activity in 1989 was lower than the comparable 1988 levels of activity, except for mid-November through December. Within any particular year, rig activity tends to be somewhat erratic, with the variability being influenced in part by seasonal access to drilling locations.

Geophysical activity in 1989 remained below the 1988 level, both in terms of the average number of active crews per month and the number of kilometres shot per month. The average number of active crews per month for each of the last three years is illustrated in Figure 17. Geophysical activity traditionally

Figure 13
Land Sales

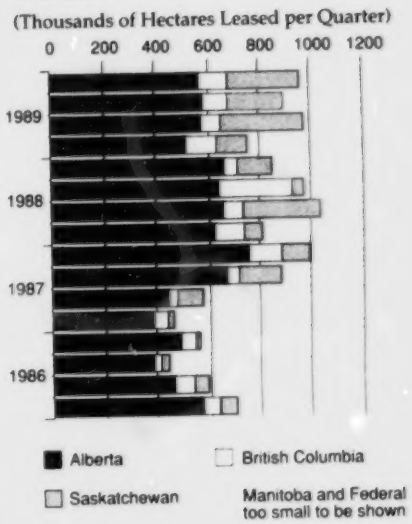


Figure 14
Land Sales

Figure 15
Canadian Wells Drilled

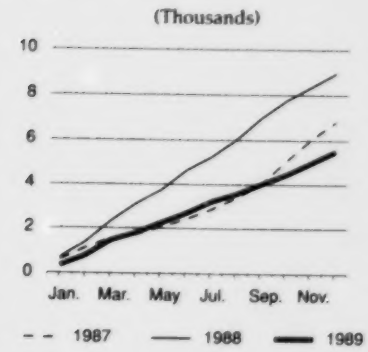


Figure 16
Canadian Rig Activity

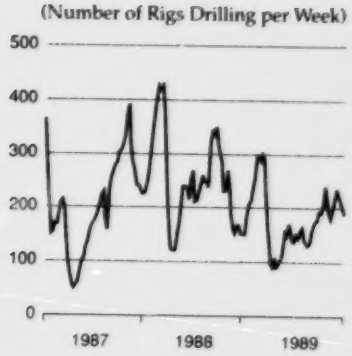
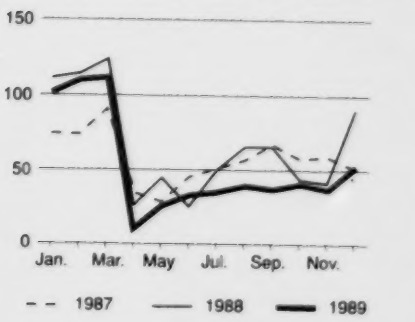


Figure 17
Geophysical Activity — Canada



increases during the winter months due to improved accessibility in some areas of the provinces.

Exploration and development expenditures in Canada during 1989 were about $5.5 billion. This represents a decrease of 18 percent from the $6.7 billion spent in 1988.

Oil and Gas Reserves

The Board's estimate of remaining established reserves of conventional crude oil, as of 31 December 1988, is 666.2 million cubic metres (Table 3), or 39.3 million cubic metres less than the estimate for year-end 1987.

Table 3
Estimated Established Reserves of Crude Oil
At 31 December 1988
(Millions of Cubic Metres)

Conventional Crude Oil	**Initial**	**Remaining**
British Columbia	86.9	18.1
Alberta	2 141.6	502.8
Saskatchewan	469.5	110.8
Manitoba	35.1	8.9
Southern Yukon & NWT	35.2	24.8
Ontario & Other Eastern Producing Areas	10.5	0.8
Subtotal	**2 778.8**	**666.2**
Crude Bitumen[a]		
Surface-mineable	644.0	497.0
In Situ	99.0	69.5
Subtotal	**743.0**	**566.5**
Total for Canada	**3 521.8**	**1 232.7**

Note: The numbers on this table have been rounded.
(a) Source: AERCB, Report ST89-18. (Based on developed projects only.)

Initial (i.e., before production) established reserves of conventional crude oil increased 34.5 million cubic metres through discoveries, extensions to reserves and revisions to previous estimates. Since 1985, annual reserves additions have not replaced production.

The Board includes estimates of the initial and remaining established reserves for crude bitumen. These estimates are for developed projects only and are based on estimates for surface-mineable and in situ projects contained in the Alberta Energy Resource and Conservation Board (AERCB) annual reserves report.

The Board does not currently include oil discovered in the frontier regions in its established reserves estimates, because of uncertainty as to the economic viability of these reserves. Small deliveries of crude oil have been made by tanker from the Bent Horn field in the Arctic Islands and from the Amauligak field in the Beaufort Sea.

Table 4
Estimated Established Reserves of Marketable Natural Gas
At 31 December 1988
(Billions of Cubic Metres)

Conventional Areas	**Initial**	**Remaining**
British Columbia	409.5	208.5
Alberta	3 009.5	1 545.9
Saskatchewan	109.4	66.8
Southern Yukon & NWT	14.5	8.0
Ontario & Other Eastern Producing Areas	40.1	9.9
Subtotal Conventional Areas	**3 583.0**	**1 839.2**
(Subtotal Conventional Areas in exajoules)	**137.8**	**70.7**
Frontier Areas		
Mackenzie Delta/Beaufort Sea	308.5	308.5
Subtotal Frontier Areas	**308.5**	**308.5**
(Subtotal Frontier Areas in exajoules)	**11.4**	**11.4**
Total for Canada	**3891.5**	**2147.7**
(Total for Canada in exajoules)	**149.2**	**82.1**

Note: The numbers on this table have been rounded.

Initial established reserves of marketable natural gas in the conventional areas increased 83.5 billion cubic metres, through discoveries, extensions to reserves and revisions to previous estimates. The re-assessment of the initial established reserves in the Mackenzie Delta/Beaufort Sea area resulted in an increase of some 159.0 billion cubic metres. In conjunction with the review of the Mackenzie Delta area, the Board also reconsidered its estimation of reserves in the Arctic Islands. Due to uncertainty as to development timing and the economic viability of these reserves, the Board has concluded that at this time it would be appropriate to exclude this gas from the established reserves category and consider it to be a discovered resource. As a result, the inital established reserves in Canada have been reduced by 69.7 billion cubic metres. Improved economic conditions in the future could return these

Figure 18
Exploration and Development Expenditures

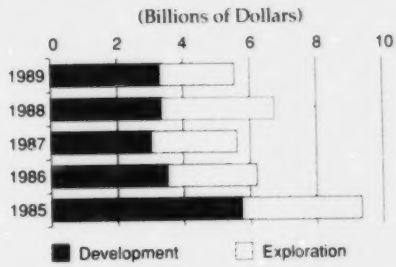


Figure 19
Crude Oil
Reserves Additions vs Production
Conventional Areas

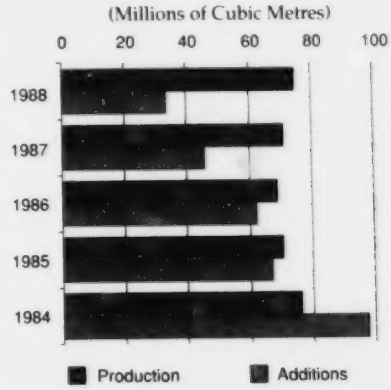
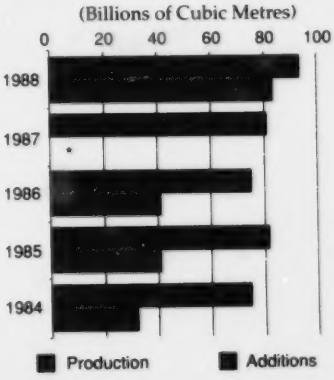


Figure 20
Natural Gas
Reserves Additions vs Production
Conventional Areas



*In 1987, reserves additions amounted to 0.3 billion cubic metres.

discovered Arctic Island resources to the established reserves category.

As a result of the above discoveries and revisions and extensions in the conventional and frontier areas of Canada, the Board's estimate of remaining established reserves of marketable natual gas, as of 31 December 1988, is 2147.7 billion cubic metres (Table 4). This estimate is 172.0 billion cubic metres lower than the estimates for year-end 1987. In the conventional areas, the remaining established reserves decreased by 18.7 billion cubic metres, as reserves additions did not replace production during the year.

In addition to the above established reserves of crude oil and natural gas in the conventional and frontier areas, the Board recognizes the estimates of Canada Oil and Gas Lands Administration (COGLA) discovered resources in the frontier areas. These estimates are provided in Table 5 and in the future could be classified as established reserves as development timing and economics become more certain.

Table 5

Discovered Resources [a] in the Frontier Areas
At 31 December 1988

	Crude Oil (Millions of Cubic Metres)	**Natural Gas** (Billions of Cubic Metres)
Mackenzie Delta/ Beaufort Sea	253.2	308.5[b]
Grand Banks/ Labrador	212.0	146.8
Nova Scotia	22.9	162.4
Arctic Islands	65.7	416.4
Other Areas	0.0	0.0
Total Frontier Areas	**553.8**	**1034.1**

(a) Discovered resources are the best current estimates of the quantity of crude oil and natural gas potentially recoverable under current technology and not constrained by economic viability, specifically proved by drilling, testing or production, plus that judgment portion of the contiguous recoverable resource that is interpreted to exist, from geological, geophysical or similar information, with reasonable certainty.

(b) The Board recognizes this discovered resource as established reserves, as noted in Table 4.

Note: The numbers on this table have been rounded.
Source: COGLA Annual Report 1988.

The Year at a Glance

Highlights of major activities during 1989

NATURAL GAS

- granted an 11-year licence extension to Alberta and Southern to export an additional 116.4 billion cubic metres (4.1 trillion cubic feet) of natural gas (GH-5-88)

- granted licences to Esso, Gulf and Shell Canada authorizing the export of natural gas from the Markenzie Delta to the United States. Esso is authorized to export 144 billion cubic metres (5.1 trillion cubic feet); Gulf 91 billion cubic metres (3.2 trillion cubic feet) and Shell Canada 25 billion cubic metres (0.9 trillion cubic feet). A review of the decision has been requested by the Council of Canadians and the Dene/Metis Negotiations Secretariat (GH-10-88)

- approved a seven-year licence extension to Western Gas Marketing and an increase in the volume of 6.3 billion cubic metres (222.6 billion cubic feet) of natural gas; also granted a six-year licence extension to ProGas and an increase in the volume of 23.3 billion cubic metres (0.8 billion cubic feet) of natural gas (GH-9-88)

- granted a 15-year licence to Amoco to export 3.85 billion cubic metres of natural gas (137 billion cubic feet) (GH-3-89)

- approved a three-year licence to BC Gas to export/import 184 million cubic metres (6.5 billion cubic feet) of natural gas (GH-3-89)

- authorized five companies, Canterra, Norcen, Poco, Shell Canada and Western Gas Marketing, to export a total of up to 22 billion cubic metres (0.77 trillion cubic feet) of natural gas over a 16-year period. The Board denied an application by Vector Energy (GH-8-88)

- approved four natural gas export applications by Amoco, ProGas, Western Gas Marketing and ICG (Ontario) to export a total of 10.4 billion cubic metres (367 billion cubic feet). The Board denied four other gas export applications filed by Direct Energy, Western Gas Marketing, Indeck and Shell Canada (GH-1-89)

- held a workshop in conjunction with the Canadian Energy Research Institute and discussed technical matters related both to benefit-cost analysis and the analysis of the impact of incremental exports on Canadian gas markets

ELECTRICITY

- granted B.C. Hydro's application for an 18-month extension of its licence EL-162 (EH-1-89)

- granted Hydro-Québec's application to export to the New York Power Authority 800 megawatts of firm diversity power and up to 3000 gigawatt hours of associated energy annually (EH-2-89)

ENERGY STUDIES

- issued *Natural Gas Market Assessment, 1989-1991*, the second of a series of studies to be published from time to time, providing an assessment of the functioning of the

Canadian natural gas market and a review of the short-term outlook for the Canadian natural gas supply and demand

PIPELINES

- approved a $573-million expansion of the TransCanada system comprising 407 kilometres of pipeline, four meter stations and five compressor units for service to begin 1 November 1990

TOLL REGULATION

- established new tolls that TransCanada may charge for the transportation of natural gas to eastern Canada at a level 11 percent lower than the tolls requested by TransCanada

- ruled on the method of allocating the capacity which will become available on the Westcoast pipeline and rendered decisions on queuing procedures; denied a proposal by Westcoast to provide service at a promotional toll level to the Vancouver Island Pipeline Project

- considered Westcoast's rate base, cost of service, and rate of return for the 1990 test year during Phase II of Westcoast's toll hearing; a decision was issued on 19 December 1989

- heard an application by TransCanada for new tolls effective 1 January 1990

- ruled on a request by North Canadian Oils for access to Foothills pipeline and established criteria for pipeline access and procedures for allocating firm capacity

LEGAL ACTIONS

- The Federal Court of Appeal held that a six-kilometre pipeline proposed to be built by Cyanamid Canada Pipeline Inc. in southwestern Ontario fell within provincial rather than federal jurisdiction; a further appeal by Cyanamid to the Supreme Court of Canada was discontinued on 25 September 1989

- Midland Cogeneration Venture Limited applied to the Federal Court of Appeal for leave to appeal the Board's June 1989 decision in which the Board authorized five Canadian companies to export natural gas to Midland and Consumers Power Company and conditioned the licences so that the exports to Midland could not exceed those to Consumers in any one year. By a letter to the Court dated 29 November 1989, counsel for Midland indicated that Midland was assessing the timeframe within which it wished to pursue this appeal and requested that the Court defer consideration of the appeal case until Midland finalized its plans and so advised the Court.

- Western Gas Marketing, as agent for TransCanada, Indeck, Shell Canada and Niagara Mohawk launched various actions in the Federal Court of Appeal relating to the Board's decisison on GH-1-89, denying their export applications. All these actions relate for the most part to the fairness of the procedure used by the Board in conducting its benefit-cost analysis in assessing the export applications in question and to the question of whether the use of benefit-cost analysis to restrict exports is contrary to the Free Trade Agreement.

- On 21 December 1989, the Independent Gas Users Association applied to the Federal Court (Trial Division) for orders (a) setting aside the decision taken at the GH-5-89 pre-hearing conference to not include alternative toll methodology (i.e. rolled-in vs. incremental) in the list of issues to be considered in GH-5-89, (b) requiring the Board to add the issue to the list of issues and (c) prohibiting the Board from commencing GH-5-89

until the issue is included. The applications are to be heard by the Federal Court in February 1990.

REGULATORY PROCESS

- Bill C-23, an amendment to the *National Energy Board Act*, includes the incorporation of the new electricity policy, housekeeping amendments, a reduction in the number of permanent Board Members from 11 to 9, and the provision for the Board to recover the cost of its operation; Bill C-23 was being considered by Parliament at year-end

- Part VI Regulations are being amended to reflect the new electricity export policy and to reflect Market-Based Gas Export Procedures

- the Board issued for comment a draft Memorandum of Guidance regarding the early public notification of proposed applications for pipeline construction or expansion, the export of electricity, or the export of high-sulphur crude oil from the west coast of Canada. The comments received are currently under review

ORGANIZATION AND ADMINISTRATION

- Mme Livia Thur, Associate Vice-Chairman, resigned from the Board on 1 April

- Mr. A. Digby Hunt, Associate Vice-Chairman, retired from the Board on 4 August

- Mrs. Anita Côté-Verhaaf was appointed Board Member effective 1 September

- Mr. Kenneth W. Vollman was re-appointed temporary Board Member for a three-year term effective 30 September. He was also re-appointed Administrator of the Northern Pipeline Agency

- Mr. John R. Jenkins, Board Member, retired from the Board on 12 November, after 30 years of service

- Mrs. Marie Tobin was appointed Secretary of the Board on 16 October

- Ms. Martha Musgrove was appointed Board Member effective 1 December 1989

- Ms. Céline Bélanger and Mr. Roy Illing were appointed Board Members effective 1 January 1990

- Effective 1 February, the Board suspended its standing panels on a trial basis. Non-hearing matters are now being considered by the Board as a whole

- The Board has received Treasury Board approval to proceed with full recovery of its operating costs from regulated industries, subject to the passage of amendments to the *Act*. Consultation with industry on proposed implementation plan took place during 1989.

Highlights of the Pipeline Companies Under National Energy Board Jurisdiction

	1989 Rate Base[1] ($000,000)	1989 Revenue Requirement ($000,000)	Length (Including Loops) (km)	1989 Actual Throughput (10^6m^3)
GROUP 1[2] Gas				
Alberta Natural Gas Company Ltd.	17	28	172	14 635
Foothills Pipe Lines Ltd.	583	173	850	14 416
Gazoduc Trans Québec & Maritimes Inc.	369	71	341	2 752
TransCanada PipeLines Limited	2 505	938	10 675	38 908
Westcoast Energy Inc.	786	273	4 497	11 817
GROUP 1 Oil				(10^3m^3)
Cochin Pipe Lines Ltd.	48	31	1 125	3 783
Interprovincial Pipe Line Company, a division of Interhome Energy Inc.	624	272	6 652	79 894
Interprovincial Pipe Line (NW) Ltd.	305	73	868	1 836
Trans Mountain Pipe Line Company Ltd.	96	63	1 328	10 194
Trans-Northern Pipelines Inc.	38	27	847	9 791
GROUP 2				
Total	NA	N/A	3 195	N/A

1 Net plant or equivalent, including working capital.

2. Group 1 consists of the ten major pipeline companies, financial data for which are based on preliminary estimates obtained from those companies. Group 2 is comprised of the remaining 39 smaller pipeline companies which are regulated on a complaint basis only and for which financial data are not available.

Board Activities

... included 13 hearings across Canada for a total of 151 hearing days.

Hearings and Inquiries

During 1989, the Board conducted all or part of 13 hearings in locations such as Vancouver, Inuvik, Calgary, Ottawa and Montreal, for a total of 151 hearing days.

This section summarizes the major decisions issued in 1989 following public hearings.

Natural Gas Exports

Alberta and Southern Gas Co. Ltd. - Extension of Licence - GH-5-88

In November 1987, Alberta and Southern applied to vary licence GL-99, which authorizes the export of natural gas to Pacific Gas Transmission for resale to Pacific Gas and Electric Company in northern California. The company asked for a 16-year extension of the term of the licence, from 1994 to 2010, and an increase of 169.3 billion cubic metres (6.0 trillion cubic feet) in the total volume to be exported.

The Board held a public hearing in Calgary in December 1988 and released its Reasons for Decision in June 1989. The Board granted an 11-year extension to the term of the original licence and authorized Alberta and Southern to export an additional 116.4 billion cubic metres (4.1 trillion cubic feet) of natural gas beginning in October 1994.

Esso Resources Canada Ltd./Gulf Canada Resources Ltd./Shell Canada Limited - Licences - GH-10-88

By applications dated 21 September 1988, Esso and Shell Canada requested authorization to export 144 billion cubic metres (5.1 trillion cubic feet) and 25 billion cubic metres (0.9 trillion cubic feet), respectively, of natural gas from the

Mackenzie Delta to the United States over a 20-year period between 1996 and 2000. Gulf filed a similar application on 8 February 1989 requesting a licence to export 91 billion cubic metres (3.2 trillion cubic feet) of natural gas.

In April 1989, the Board held a public hearing over a ten-day period in Ottawa and Inuvik and released its Reasons for Decision in October 1989, approving the requested licences. The licences are conditioned to ensure that Canadians will have the opportunity to purchase Mackenzie Delta gas on terms and conditions similar to those under which the gas would be exported. The companies are required to file executed sales contracts with the Board for approval.

The Board received applications by the Council of Canadians and the Dene/Metis Negotiations Secretariat to review the decision. In accordance with its rules of practice, the Board decided to seek comments on the applications. A decision on whether a review is justified will be made in the spring of 1990.

Western Gas Marketing Limited/ProGas Limited - Extension of Licences - GH-9-88

Western Gas Marketing and ProGas respectively filed on 16 September 1988 and on 25 October 1988 applications to vary their existing licences to export natural gas to the United States.

Western Gas Marketing requested that the term of licence GL-83, which authorizes natural gas exports to Boundary Gas Inc., be extended from November 1996 to January 2003, and that the exportable volume be increased by 6.3 billion cubic metres (222.6 billion cubic feet).

ProGas requested that its licence GL-98, which authorizes exports to four American interstate pipeline companies serving the American mid-west and northeast, be extended by six years, from 1994 to 2000, and allow for an increase in the exportable volume by 23.3 billion cubic metres (823 billion cubic feet).

A public hearing to consider both applications was held in Calgary on 25 January 1989. The decision approving the licence amendments was issued in June.

Amoco Canada Petroleum Company Ltd. - Licence - GH-3-89

In an application dated 1[illegible]anuary 1989, Amoco requested authorization to export 3.85 billion cubic metres (137 billion cubic feet) of natural gas to Washington Natural Gas Co. of Seattle over a 15-year period beginning 1 November 1989.

The Board held a one-day public hearing in Vancouver in March 1989, and released its Reasons for Decision in May 1989, approving the requested licence.

BC Gas Inc. - Export/Import Licence - GH-4-89

In an application dated 8 May 1989, BC Gas requested authorization to export 184 million cubic metres (6.5 billion cubic feet) of natural gas over a three-year period.

BC Gas stated that the gas would be exported at Huntingdon, British Columbia, for injection into storage facilities located at the Jackson Prairie storage facility in Washington State. The gas would be "re-imported" into Canada through exchange arrangements with gas exporters during the winter period for use by BC Gas to meet its peaking requirements. As a result, there would be no net export or physical re-import of gas.

A public hearing to consider the application was held in July in Vancouver. The decision approving the licence was also issued in July.

Licences in Support of the TransCanada PipeLines Limited - 1989/90 Facilities Application - GH-4-88

During 1988, the Board received a number of applications for new export licences or amendments to existing licences. These licences would support the facilities requested by TransCanada in an application dated 28 July 1988 for approval to expand its pipeline system in Saskatchewan, Manitoba, Ontario and Quebec. (Please see pipeline facilities section.)

a. Canterra Energy Ltd., dated 13 September 1988
   Norcen Energy Resources Ltd., dated 14 September 1988
   Poco Petroleums Ltd., dated 16 September 1988
   Shell Canada Limited, dated 14 September 1988
   Western Gas Marketing Limited, dated 15 September 1988

The companies proposed to export a total of up to 22 billion cubic metres (0.77 trillion cubic feet) of gas to the Consumers Power Company and Midland Cogeneration Venture Limited Partnership of Michigan. The exports would take place at

Emerson, Manitoba over a 16-year period between 1988 and 2005.

b. Vector Energy Inc., dated 29 August 1988

Vector proposed exporting up to 380 million cubic metres (13.4 billion cubic feet) per year over a 20-year period between 1989 and 2009. The gas would be sold to Altresco Inc. of Denver, Colorado, for a proposed cogeneration facility to be constructed in Pittsfield, Massachusetts.

c. Direct Energy Marketing Limited, dated 12 October 1988

Direct Energy planned to export up to 936 million cubic metres (33 billion cubic feet) over 15 years, beginning November 1989. The gas would be sold to Consolidated Fuels, which would use the gas to fuel the Arrowhead cogeneration facility to be constructed in East Georgia, Vermont. In January 1989, Direct Energy requested that consideration of its application be deferred. The Board decided to consider Direct's application as part of its review of TransCanada's 1990 facilities application.

The Board held a public hearing on these applications in Calgary in January 1989 and issued its Reasons for Decision in July. The Board issued the licences requested by the first five companies listed above. These five licences generally reflect the quantities and licence periods applied for with the exception of Poco's licence to export 2 715 million cubic metres (96 billion cubic feet) over an 11-year period, rather than the requested 3 750 million cubic metres (132.5 billion cubic feet) over 15 years. The Board denied the application filed by Vector Energy Inc.

On 25 July 1989, Vector requested that the Board review its decision. In support of its application for review, Vector filed a revised application. On 3 August 1989, the Board decided to deny the application for review and to treat Vector's request as a new application for a gas export licence; the latter is scheduled to be heard in a public hearing early in 1990.

Canterra, Shell Canada, Norcen, Poco and Western Gas Marketing applied on 2, 13, 19 and 26 October and 1 November, respectively, to amend the condition in their licences that limits the annual amount of the exports to Midland to no more than those to Consumers. (Refer also to *Legal Actions*.)

Licences in Support of the TransCanada PipeLines Limited - 1990/91 Facilities Application - GH-1-89

By 15 February 1989, the Board had received a number of applications for new export licences or amendments to existing licences. These licences would support the facilities requested by TransCanada in an application dated 29 December 1988 and subsequently revised in March and May 1989, for approval to expand its pipeline system in Saskatchewan, Manitoba, Ontario and Quebec. (Please see pipeline facilities section).

Details of the eight applications follow.

	Term Quantity	
Shipper/Importer	**Billion Cubic Metres**	**Billion Cubic Feet**
At Sprague, Manitoba:		
ICG Utilities (Ontario) Ltd./ Export for re-import at Rainy River, Ontario	3 150	111
At Niagara Falls, Ontario:		
Amoco Canada Petroleum Limited/ Consolidated Edison	4 778	169
ProGas Limited/Texas Eastern Transmission Company	No increase in term quantity[1]	
At Cornwall, Ontario:		
Western Gas Marketing Limited/ Megan-Racine Associates, Inc.	1 820	64
At Philipsburg, Quebec:		
Direct Energy Marketing Limited/ Consolidated Fuels Co.	936	33
At Niagara Falls, Ontario:		
Shell Canada Resources Ltd./ Cogen Energy Technology Inc.	2 755	97
Indeck Gas Supply Corporation/ Indeck Energy Services of Oswego Inc.	3 500	124
At Gananoque, Ontario:		
Western Gas Marketing Limited/ Niagara Mohawk Power Corporation	7 910	279

1. ProGas requested that the export points of two existing licences be changed from Emerson and Monchy to Niagara Falls.

The Board held a public hearing on these applications commencing 12 April in Calgary. The hearing continued in Ottawa on 25 April, and ended on 13 July. In November 1989, the Board released its decision to approve the first four

applications and deny the last four. Reasons for the decisions were issued in December.

Information on Gas Supply Required to be Provided by TransCanada PipeLines Limited in Support of its 1991/92 and 1992/93 Facilities Application - GHW-3-89

In July, after considering issues raised by Union Gas Limited and C-I-L- Inc., the Board decided to hold a public hearing, by way of written submission, to obtain the views of interested parties regarding the information on gas supply required to be provided in support of TransCanada's 1991/92 and 1992/93 facilities applications.

After considering 54 submissions, and having regard for the impact of its decision on the timing of the refiling of TransCanada's facilities application, the Board issued its decision on 3 November 1989 with the reasons to follow at a later date.

The Board decided not to allow flexibility with respect to the project-specific supply information specified in the draft NEB Rules of Practice and Procedure, except in circumstances when the incremental volume included in TransCanada's facilities application represents normal growth in a shipper's existing market. In these circumstances, TransCanada is required to provide evidence with respect to the shipper's existing gas supply arrangements and gas supply acquisition process, as well as the status of supply acquisition for the incremental volumes included in its facilities application.

The Board also decided that an overall supply assessment is necessary and complementary to project-specific supply information. Therefore, the Board decided that TransCanada is required to provide evidence that there is, or will be, an adequate supply of natural gas to ensure sufficient utilization of its total pipeline capacity in the long term.

Electricity Exports

British Columbia Hydro and Power Authority - Licence Extension - EH-1-89

In August 1988, B.C. Hydro requested authorization to extend the term of its licence EL-162, issued in 1984, beyond its expiry date of 30 September 1988. The licence allows for the export of firm power and energy to utilities in Washington, Oregon, and California. In September 1988, the Board decided to extend the termination date of the licence by six months, to 31 March 1989 to allow time for review of B.C. Hydro's request.

A hearing was held in Vancouver on 6 and 7 March 1989 and the Board granted B.C. Hydro an 18-month extension to 30 September 1990 on 28 March 1989.

The New Brunswick Electric Power Commission - Condition 6 (b) - EHW-1-89

By letter dated 10 March, New Brunswick Power requested clarification of condition 6(b) of its interruptible export licences EL-140, EL-143 and EL-145. Condition 6(b) requires that energy be offered to economically accessible Canadian markets prior to being exported.

The Board decided to provide interested parties an opportunity to comment on the interpretation of this condition prior to responding to New Brunswick Power.

After reviewing the comments received, the Board decided on 17 August that the purpose of the offer condition was to ensure that, before an export would be made, each neighbouring utility would have an opportunity to purchase an amount of electricity equal to the amount proposed to be exported under the same terms and conditions, including price.

Hydro-Québec - Licence - EH-2-89

In an application dated 15 February 1989, Hydro-Québec applied for authorization to export to the New York Power Authority 800 megawatts of firm diversity power and up to 3 000 gigawatt hours of associated energy each year during the period beginning June 1991 and ending October 1998.

A public hearing was held in Montreal from 16 to 18 May 1989. The decision approving the licence was issued in September.

Pipeline Facilities[1]

TransCanada PipeLines Limited - 1989/90 Facilities - GH-4-88

In January 1989, the Board released its Reasons for Decision on TransCanada's 28 July 1988 application for facilities required to meet increased domestic and export markets as of 1 November 1989. The decision itself had been issued in December 1988 to allow TransCanada to proceed with a cost-effective winter construction plan, to provide the necessary lead time for compressor and pipe procurement, and to address concerns regarding the financing requirements of certain cogeneration projects.

1. Includes toll design, where applicable.

TransCanada PipeLines Limited - 1990/91 Facilities - GH-1-89

TransCanada filed an application dated 29 December 1988 for approval to expand its pipeline system in Saskatchewan, Manitoba, Ontario and Quebec in order to increase, by 1 November 1990, its capacity to serve expanding domestic and export markets.

TransCanada proposed to add 471 kilometres of pipeline and new compression at an estimated cost of $652 million. The application included two sections of new pipeline, 26 kilometres at Gananoque, Ontario, and 36 kilometres at Napierville, Quebec. The remaining kilometres consisted of parallel pipeline across TransCanada's system, mostly in Saskatchewan and Manitoba.

In March 1989, TransCanada revised its application, requesting approval to construct, in addition, the 206-kilometre Dawn Line, and a 7-kilometre loop on its Emerson Extension in Manitoba. As a result, the estimated cost of the requested facilities was revised to $868 million.

In early May, TransCanada further revised its application, withdrawing its proposal to construct the Dawn Line as a result of an agreement between TransCanada and Union Gas aimed at minimizing the duplication of pipeline facilities. Under the agreement, Union Gas will transport gas for TransCanada from Dawn to Kirkwall. TransCanada received in early May the Board's approval to purchase Union Gas' Kirkwall Line and, in its revised application, proposed to install 32.5 kilometres of parallel pipeline alongside it. As a result of the revised application, the total cost of the 1990/91 facilities was estimated to be $709 million.

A public hearing on the application was held in Calgary and Ottawa between 12 April and 13 July 1989. At the same hearing, the Board also considered a number of applications to export natural gas to the United States (see previous section on gas export applications).

The Board issued its decision on 21 August 1989, ahead of its reasons because of the lead time required for the procurement of compressors and pipe as well as other facilities planning requirements.

In its decision, the Board approved the construction and installation of 407 kilometres of pipeline, four meter stations, and five compressor units. The estimated cost of the approved facilities is $593 million.

The Board denied the relocation of a compressor unit to TransCanada's Kirkwall Line, which was not related to the 1990 requirements and 35 kilometres of pipeline on TransCanada's western section, which would have provided loss-of-critical-unit protection.

The Board initally did not render a decision on the proposed Gananoque Extension in eastern Ontario. The Board had previously informed parties that it would re-open the hearing to obtain further evidence on route selection and environmental matters related to the Gananoque Extension, if the related application for the export of natural gas by Western Gas Marketing Limited was approved. On 20 November 1989, the Board issued its decision on the latter application and denied the export licence. Consequently, the Gananoque extension and associated metering facilities were denied.

Foothills Pipe Lines (Alta.) Ltd. - Eastern Leg Expansion - GHW-1-89

In an application dated 11 April, Foothills requested approval to install decompression /recompression capability around a gas stripping plant near Empress, Alberta. The new facilities would remove a bottleneck on the Eastern Leg of Foothills' pipeline and would allow the company to increase the operating pressure of its pipeline, while continuing to strip the gas stream of ethane and other heavier hydrocarbons prior to leaving Alberta.

The higher pressure would allow Foothills to increase the capacity of the Eastern Leg Prebuild by approximately 25 percent, to 38.2 million cubic metres per day (1 350 million cubic feet per day) once further minor modifications were made to the system.

The expansion is estimated to cost $34.5 million.

The Board approved Foothill's application on 30 June.

Citizens' Coalition for Clean Water - St. Clair Pipelines Ltd. - Review of Environmental Conditions - GH-3-88

The Board issued a decision in October 1988, approving an application by St. Clair Pipelines to construct a pipeline across the St. Clair River approximately 25 kilometres south of Sarnia, Ontario. The method of construction approved was directional drilling under the river.

The Citizen's Coalition for Clean Water filed an application, dated 15 March 1989, requesting that the Board review its

decision. The Coalition, representing the residents of the Town of Wallaceburg and the Walpole Island Indian Reservation, was concerned with the protection of their water supply. Pollution could have been caused by the re-introduction of contaminants into the water from the disturbed riverbed, or from an incident with the use and disposal of the drilling mud.

From its review, the Board issued additional environmental conditions relating to the testing of the quality of the river water, the handling of drilling mud, and the disposal procedures for those muds. St. Clair Pipelines was required to fulfill those conditions during the construction and installation of the pipeline.

The pipeline crossing was successfully completed on 28 October 1989, with no adverse environmental effects being generated.

Tolls and Tariffs

North Canadian Oils Limited - Access to Foothills Pipeline - MH-2-88

In an application dated 17 August 1988, North Canadian Oils requested that the Board issue an order requiring Foothills to provide firm service to it on the Foothills pipeline system in Saskatchewan. North Canadian Oils required the capacity on the Foothills system in order to complete the arrangements for the transportation of 1.4 million cubic metres per day (50 million cubic feet per day) of natural gas to markets in the central United States.

The Board held a public hearing commencing in Calgary on 13 February 1989 and ending in Ottawa on 23 February, and released its decision approving the application on 10 April. The Reasons for Decision were issued in July and included decisions on other aspects of Foothills' tariff, including pipeline access criteria and procedures for allocating firm capacity.

TransCanada PipeLines Limited - 1988 Tolls - RH-1-88

The public hearing on TransCanada's application for new tolls for 1988 was held in two phases. Phase I dealt with toll design and tariff issues and Phase II dealt with cost of service issues and any remaining tariff matters.

Phase I of the hearing began on 16 May 1988 in Ottawa and ended on 13 September, for a total of 54 sitting days. The Board released its Reasons for Decision on 5 January 1989. In its decision, effective 1 November 1989, the Board lifted its prohibition on "self-displacement", that is, the transportation of

any gas purchased by distributors to displace gas they were taking previously from TransCanada.

Phase II of the hearing began on 9 January 1989 in Calgary and continued in Ottawa on 30 January. It ended on 11 April in Ottawa, for a total of 51 sitting days. Phase II dealt with rate of return, rate base, and cost of service matters for 1988 and 1989, as well as various toll design and tariff issues.

The Board issued its Reasons for Decision on 2 August 1989, establishing the new tolls TransCanada may charge for the transportation of gas to central and eastern Canada as well as to export markets. The new tolls were 11 percent lower than the tolls requested by the company.

The Board denied TransCanada's request to increase the equity component of its capital structure from 30 to 32.5 percent. It approved rates of return on equity of 13.25 percent for 1988 and 13.75 percent for 1989. The 1987 approved rate was 13.25 percent. The Board also decided not to implement a capacity brokering scheme at this time, but will allow assignments at a discount provided that the toll approved by the Board is paid to TransCanada. Finally, the Board asked TransCanada to submit revised queuing procedures to deal with shippers requesting new capacity. The revised procedures were received in early December and fowarded to interested parties for comments. The comments received are under review.

Phase II also dealt with two other applications, one by Northridge Petroleum Marketing Inc., dated 12 December 1988, the other by Union Gas Limited, dated 23 January 1989. The Northridge application requested the Board to issue orders to provide access to the TransCanada pipeline system for gas to be transported to southwestern Ontario via the Great Lakes system. Union Gas requested the Board to direct TransCanada, effective 1 February 1989, to receive, transport and deliver natural gas for Union Gas on the same terms and conditions as contracts currently in effect. On 18 April 1989, the Board issued its decision approving the Northridge application. Union Gas withdrew its application on 20 June 1989.

Westcoast Energy Inc. - 1989/90 Tolls- RH-1-89 / RH-2-89

On 9 January 1989, the Board advised Westcoast and interested parties that the Board had capped Westcoast's 1989 revenue requirement at $274 million. This amount was $1 million lower than that forecast by the company for 1989, and reflected a cost of common equity at the previously approved level of 13.75 percent. This innovative approach avoided the need for an expensive and lengthy hearing into the company's 1989 cost

of service by making a formal review of Westcoast's toll design and tariffs for 1989 unnecessary.

On 23 March 1989 the Board announced that the examination of Westcoast's tolls for 1990 would be conducted in two separate hearings.

The Phase I (RH-1-89) hearing considered toll design and tariff matters, including capacity allocation and self-displacement. The Phase I public hearing began on 12 June 1989 in Vancouver and ended on 18 July in Ottawa, a total of 17 sitting days.

During the course of the hearing, on 5 July, the Board issued its decision on the method of allocating the capacity which will become available on Westcoast's pipeline as a result of the expiry of long-standing gas sales contracts with domestic and export customers. The Board also rendered decisions on queuing procedures, including the granting of renewal rights, and self-displacement, rescinding its earlier prohibition of the latter.

In a second decision, issued on 4 August, the Board denied a proposal by Westcoast to provide service at a promotional toll level to the Vancouver Island Pipeline Project.

The Board issued its Reasons for Decision on 12 October 1989, providing both reasons for its earlier decisions and decisions on all other issues examined during Phase I of the hearing, including the design of interruptible, processing and transportation storage tolls, and the allocation of interruptible capacity.

The Phase II (RH-2-89) hearing was held in Vancouver from 11 to 24 October, with final argument in Ottawa on 31 October and 1 November. During this hearing, the Board directed Westcoast to set final tolls for the stub period 1 November 1989 to 31 December 1989. This decision avoided the necessity for interim tolls in 1989 and had the desirable attribute of producing certainty in the tolls for this period. As a result, in the Phase II hearing the Board considered Westcoast's rate base, cost of service, and rate of return for the 1990 test year only.

On 19 December, the Board issued its decision which allows Westcoast to establish new tolls for the transportation of natural gas for the 1990 test year. The Board issued its decision without reasons in order to avoid having to establish interim tolls effective 1 January 1990. The Reasons for Decision will be released early in 1990.

As part of its decision, the Board approved a rate of return on equity of 13.25 percent on a common equity component of

35 percent. The approved rate of return on equity is a reduction of 50 basis points from the previously approved rate. The Board expects the final tolls to be slightly lower that those currently in place.

On 22 December 1989, Westcoast requested that the Board review and amend a portion of its decision to rectify an error and to keep the company whole. On 9 January 1990, the Board issued an amending order and directed Westcoast to file new tolls with the Board by 15 January 1990.

During 1989, the Board received and considered a number of applications to review its decisions on Westcoast's tolls.

On 1 September, Pacific Coast Energy Inc. applied for a review of the decision relating to a proposal by Westcoast to provide service at a promotional toll level to the Vancouver Island Pipeline Project. On 13 September, the British Columbia Ministry of Energy, Mines and Resources also applied for a review and rehearing of the Board's decision. After considering the applications of Pacific Coast Energy and the B.C. Ministry, the comments of interested parties on whether the Board should conduct a review, and the applicants' reply comments, the Board decided on 1 November to deny the applications. The Board was not persuaded that the grounds for review cited in the applications raised a doubt as to the correctness of the decision rendered by the Board on 4 August.

On 29 November 1989, the Independent Petroleum Association of Canada (IPAC) filed an application, requesting the Board to review its decision respecting Westcoast's interruptible service tolls. IPAC claims the tolls were set at too high a level in view of facts which became available subsequent to the conclusion of the hearing. The Board decided on 15 December that a review of the decision was warranted and requested comments from interested parties prior to issuing a final decision.

BC Gas Inc. - Upstream and Downstream Diversion Complaint

BC Gas filed a complaint on 6 December 1989 against Westcoast Energy Inc. for refusing to permit BC Gas (Lower Mainland Division and Island Division) to divert system sales gas to upstream and downstream delivery points in the Westcoast system. On 21 December 1989 the Board asked for comments from interested parties before ruling on the complaint.

TransCanada PipeLines Limited - 1990 Tolls - RH-3-89

In an application dated 26 July, as amended, TransCanada applied for new tolls effective 1 January 1990.

The hearing began on 27 November in Ottawa and ended on 14 December.

At the hearing the Board examined cost of service, rate base, and rate of return. The hearing did not include an examination of the toll design or tariff matters except for the throughput forecast.

The requested new tolls would increase the average toll for firm transportation by about 10 percent.

TransCanada requested a 6.7-percent increase in its total revenue requirement, from $932 million to $994 million and a 20-percent increase in its rate base, from $2.5 to $3.0 billion.

TransCanada also requested an increase in its return on common equity from 13.75 percent to 14.25 percent.

The Board expects to release its decision in this proceeding early in 1990.

Interprovincial Pipe Line Company - Toll Design Study - RHW-1-89

On 28 June 1988, Interprovincial filed a study on the design of its tolls in compliance with the Board's Reasons for Decision RH-4-86 dated June 1987.

The Board's report on the study was issued in January 1990. The report contains decisions on a number of toll design issues including the appropriate methodology for determining surcharges for medium and heavy crude oils, refined petroleum products and natural gas liquids.

Inquiries

Interprovincial Pipe Line Company - Camrose, Alberta Accident - OHW-1-89

In late 1986, the Board commenced a review of its decision to adopt recommendation 5.9 made by the Board's panel investigating a fatal accident in 1985 on Interprovincial's pipeline near Camrose, Alberta. The recommendation required pipeline companies under the Board's jurisdiction to remove certain welds and to check the soundness of a sample of other welds.

In 1988, the Board agreed with a two-phase process of review suggested by industry.

The first phase consisted of a program of inspection or sampling with the intent of gathering evidence for the review. Submissions were received from five companies: Dome Petroleum Ltd. (now "Amoco Canada Resources Limited"), Interprovincial Pipe Line Company, Petroleum Transmission Company, Trans Mountain Pipe Line Company Ltd., and Trans-Northern Pipelines Inc.

The second phase consists of a review of the recommendation in view of the submissions filed. Interested parties were requested to provide their comments on the submissions; the parties' comments are currently under review.

In a related matter, the Board invited industry to submit comments on the eleven other recommendations made in the inquiry panel's report. On 22 January, 14 April and 22 July 1988, and 16 February 1989, the Board made a number of decisions in respect of the recommendations and approved corresponding amendments to the *Onshore Pipeline Regulations*.

Other Board Activities

Oil

In 1989, 150 orders were issued for the export of crude oil and petroleum products. The Board receives monthly data from the industry on export volumes and prices for crude oil and petroleum products. The statistics are compiled and analysed, and consolidated reports are issued to the industry and other interested parties. Annual reports for crude oil and petroleum products covering export activities are published for the year.

Board staff issues, each quarter, a short-term primary demand forecast for main petroleum products in Canada by region. This demand is compared with the industry's short-term supply forecast, which is provided to the Board on a regular basis. A short-term supply and demand balance is also issued on a quarterly basis for crude oil and main petroleum products.

Natural Gas

The Board approved 151 short-term natural gas export and import orders in 1989. It also approved ten new licences and three licence amendments during the year (see Gas Appendices 4 and 12).

During 1989, the Board ensured that natural gas export transactions complied with licence terms and with approved contractual arrangements. It collected and published monthly

data on export prices, sales, and associated transportation costs which were used by a committee of officials of federal and producing-province governments to assess export prices against domestic prices.

The Board also published an update of its assessment of domestic natural gas markets (see *Energy Studies*).

Propane and Butanes

During 1989, the Board continued to monitor exports of propane and butanes. In this regard, the Board authorized 47 export orders for propane and 42 orders for butanes. Companies submit monthly data to the Board on exports, including prices and volumes. In addition, companies provide information on their supply and disposition of these products. The data are analysed and aggregated reports are provided to the industry and other interested parties.

Ethane

For purposes of export regulation, ethane is subject to the same criteria as natural gas. One order was issued for the export of ethane during 1989.

Electricity

During 1989, the Board continued to monitor electricity exports to ensure that transactions complied with licence conditions previously approved by the Board. It also issued one new export licence to Hydro-Québec and 17 orders for short-term (up to 36 months) exports. In addition, the Board also issued two exemption orders relating to international power lines and amended the conditions of two licences and two export orders. As part of the monitoring function, data on export volumes and revenues are received from each exporter and compiled into a monthly report which is issued to exporting utilities, government departments and other interested parties. A detailed list of the quantities exported and the associated revenues along with a list of the licences and orders issued in 1989 can be found in the Electricity Appendices at the back of this report.

Interprovincial Trade in Electricity

At the request of the Minister of Energy, Mines and Resources, the Board initiated a study to identify and examine the measures that could be developed to:

- enhance interprovincial trade in electricity;

- encourage greater co-operation between electrical utilities; and,

- enable buyers and sellers of electricity to have commercial access to available transmission capacity through intervening provinces for wheeling purposes. Wheeling is the transmission of power belonging to one utility through the circuits of another utility for delivery to either a third party or back to the orginating system.

The Board's review is proceeding on two tracks; the first is concerned with inter-utility co-operation, the second with wheeling and transmission access. The review will seek the active participation of provincial governments, utilities and other interested parties.

Other Electrical Activities

During the year the Board continued to keep the Minister of Energy, Mines, and Resources advised of the status of electricity exports. The Board also continued to consult with and contribute to other government departments and industry groups in both Canada and the United States which coordinate the operation of electric power utilities throughout North America.

The Board provided the Department of Indian and Northern Affairs with technical assistance in the review of a proposal by Manitoba Hydro to supply power from its system to Indian settlements in northern Manitoba.

Staff continued to work and consult with industry on the Board's CANEBEX-5 computer model, which assesses the benefits from economy energy transactions for among up to five power systems. Economy energy is energy sold by one power system to another to effect a saving in the cost of generation when the receiving party has adequate capability to supply the loads on its own system. Board staff is considering the use of the CANEBEX-5 program to identify possible benefits from wheeling as part of its review of interprovincial trade in electricity.

Energy Studies

Natural Gas Market Assessment 1989-1991

In December 1989 the Board issued its second Natural Gas Market Assessment Report.

The report updates an assessment of the functioning of the Canadian natural gas market and a review of the short-term outlook for the supply and demand for Canadian natural gas

first published in 1988. It is the second of a series which the Board will publish from time to time as part of its ongoing monitoring responsibilities. Publication of these studies was announced in the July 1987 decision in which the Board adopted the Market-Based Gas Export Procedure for assessing natural gas export applications.

The report examines in detail the structure and functioning of the Canadian natural gas market, focussing on developments since October 1988, and provides forecasts to 1991.

As a result of its review, the Board came to the following conclusions:

- Some, but not all, of the constraints to competition in the market have been eliminated in the past year.
  - Producing province removal permit regulation is under review, but Alberta continued to deny removal permits for direct sales to what it considers to be other provinces' "core" markets;
  - Sales and transportation service for the eastern Canadian distributors are now provided under separate contracts, and the sales contracts allow distributors limited flexibility to displace gas being purchased from Western Gas Marketing with gas purchased from others;
  - Manitoba, Ontario and Quebec regulators have accepted the implications of these contracts for the prices paid by end-users through to November 1990, providing some price stability during that period;
  - The number and volume of direct sales have increased, and prices for Western Gas Marketing sales and for direct one-year firm purchases have converged, indicating that there is increased competition between Western Gas Marketing and direct sales;
  - The Board has opened access to pipeline transportation service for direct shippers and has established procedures for those queuing for space with a view to ensuring fair treatment of all shippers; and
  - A growing number of direct purchasers have access to transportation service on distribution systems, although the policy in Quebec has effectively discouraged transportation of directly purchased gas other than that involved in buy/sell agreements with Quebec distributors.

- Domestic prices remained, on average, below export prices, indicating that Canadians are having no difficulty in obtaining gas supplies on at least as favourable a basis as export customers.

- Domestic natural gas sales are expected to grow in 1990 and 1991, but at a slower pace than over the last two years, reflecting expected slower growth in economic activity.

- Export sales are expected to continue to grow, exceeding previous levels in each year to 1991. Imports to southern Ontario, while small, are also expected to increase.

- Despite the expected recovery of overall drilling activity, small declines are expected in remaining reserves in western Canada in each year to 1991 as a result of high gas demand.

- The excess of productive capacity relative to demand is expected to continue declining in the forecast period, with supply and demand coming into approximate balance by 1991.

- Despite new pipeline capacity installed or under construction, increased domestic and export demand for firm carriage will result in very high pipeline capacity utilization, and interruptible transportation will continue to be in very limited supply.

The report concludes that, although some market constraints still exist, progress continued to be made toward increased competition over the past year. Gas demand is high and continues to grow both domestically and in the export market. Both productive capacity and transportation capacity (including storage facilities) are expected to be adequate to meet the demands placed upon them over the outlook period to 1991.

Natural gas prices are expected to be stable over the period to 1991, although there could be some price fluctuations for certain categories of short-term transactions.

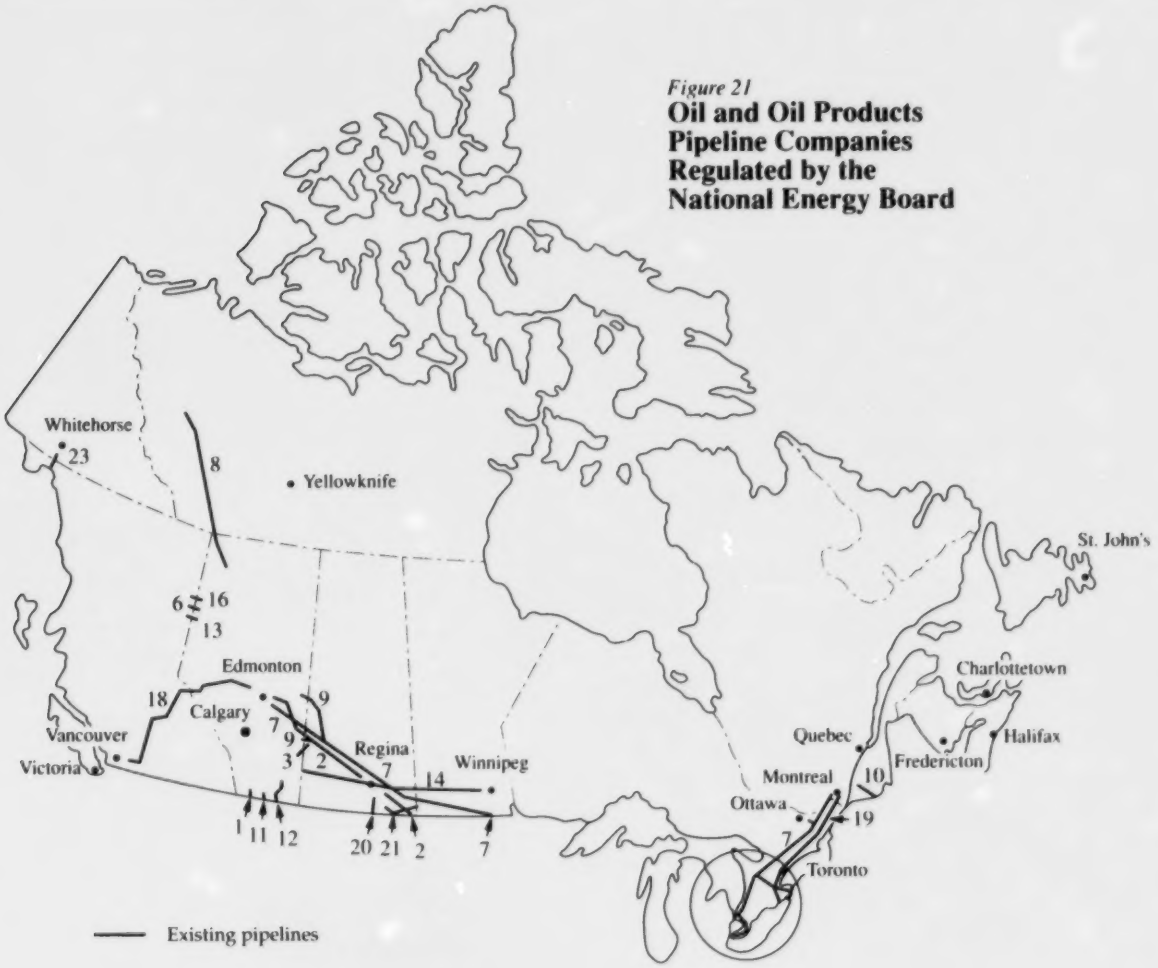
Pipeline Activities

The Board regulates 49 gas, oil and products pipeline companies. These pipeline systems are shown in Figures 21 and 22.

All new pipeline facilities under the Board's jurisdiction must be authorized by the Board prior to construction and operation. The Board is responsible for monitoring the

Figure 21

Oil and Oil Products Pipeline Companies Regulated by the National Energy Board



1. Aurora Pipe Line Company
2. Cochin Pipe Lines Ltd.
3. Dome Kerrobert Pipeline Ltd. and Pan Canadian Kerrobert Ltd.
4. Dome NGL Pipeline Ltd.
5. Dome NGL Pipeline Ltd. Amoco Canada Petroleum Company Ltd.
6. Esso Resources Canada Limited
7. Interprovincial Pipeline Company, a division of Interhome Energy Inc.
8. Interprovincial Pipe Line (NW) Ltd.
9. Manito Pipelines Ltd.
10. Montreal Pipe Line Limited
11. Mont Resources Limited
12. Murphy Oil Company Ltd.
13. Northwest Transmission Company Limited
14. Petroleum Transmission Company
15. Polysar Hydrocarbons Limited
16. Pouce Coupé Pipelines Ltd.
17. Sun Pipe Line Company
18. Trans Mountain Pipe Line Company Ltd.
19. Trans-Northern Pipelines Inc.
20. Wascana Pipe Line Ltd.
21. Westspur Pipe Line Company (1985) Inc.
22. Windsor Storage Facility Joint Venture
23. Yukon Pipelines Limited

Figure 22

Gas Pipeline Companies Regulated by the National Energy Board

1. Alberta Natural Gas Company Ltd.
2. Amoco Canada Petroleum Company Ltd. (inactive)
3. Amoco Canada Resources Limited (inactive)
4. A.P.R. Pipeline Company Ltd.
5. Bonanza Oil and Gas Ltd.
6. Canadian Hunter Exploration Ltd.
7. Canadian-Montana Pipe Line Company
8. Champion Pipe Line Corporation Limited
9. Consumers' Gas (Canada) Limited
10. Foothills Pipe Lines Ltd.
11. Gazoduc Trans Québec & Maritimes Inc.
12. ICG Transmission Holdings Ltd.
13. Many Islands Pipe Lines (Canada) Limited
14. Mid-Continent Pipelines Limited
15. Minell Pipeline Ltd.
16. Murphy Oil Company Ltd.
17. Newex Resources Ltd.
18. Niagara Gas Transmission Limited
    (a) Ottawa River Crossing
    (b) St. Lawrence River crossing
19. Novacorp International Pipelines Ltd. (certified)
20. Peace River Transmission Company Limited
21. Saskatchewan Power Corporation
22. Shell Canada Products Limited
23. St. Clair Pipelines Ltd.
24. TransCanada PipeLines Limited
25. Union Gas Limited
26. Westcoast Energy Inc.

27. Foothills Dempster Lateral (Corridor)

construction, operation and abandonment of pipeline facilities as well as protection of the environment to ensure compliance with the Board's safety and environmental regulations and any specific conditions of the approving order or certificate. In addition, the Board reviews construction and operation costs to ensure that tollpayers receive cost-efficient service. Certificates are issued for new pipelines longer than 40 kilometres, if they are approved by the Board after it holds a public hearing, as required by the *National Energy Board Act*. All certificates must be approved by the Governor in Council. The orders and certificates issued during 1989 approving new pipeline facilities are listed in Oil and Gas Appendices 1, 2 and 3.

The Board's *Onshore Pipeline Regulations* came into effect on 1 September 1988, replacing the *Oil Pipeline* and *Gas Pipeline Regulations*. The new regulations incorporate, by reference, the technical requirements for the design, construction and operation of oil and gas pipelines, as set out in the Canadian Standards Association (CSA) pipeline standards. To ensure that its views are represented and taken into consideration in the development of new or amended requirements for the standards, the Board maintains a high level of participation in CSA activities, with representation on some 25 committees, subcommittees and task forces.

In 1990, the *Onshore Pipeline Regulations* will be amended to reflect the findings of the Board's review of the recommendations arising from an inquiry into an incident on Interprovincial's pipeline system near Camrose, Alberta. Further amendments are expected in order to accommodate gas plant facilities.

During the past year, the Board's inspectors visited five companies under the Board's jurisdiction and conducted routine inspections of 21 compressor and pumping facilities. These inspections were directed at the evaluation of the operational, maintenance and safety practices of the pipeline companies and included the enforcement of Part II of the *Canada Labour Code* which focusses on occupational safety and health.

The Board also undertook construction inspections at 80 sites during 1989. These inspections were used to monitor compliance with the *Onshore Pipeline Regulations* as well as specific conditions contained in the orders and certificates issued by the Board. As a component of these inspection duties, the enforcement of Part II (previously Part IV) of the *Canada Labour Code* was carried out in so far as it applies to the pipeline company's employees on the construction site.

Compliance Monitoring

In its Regulatory Impact Analysis Statement respecting the *Onshore Pipeline Regulations*, the Board indicated its intent to use auditing of safety management practices as a compliance monitoring technique. During 1989, the Board proceeded with the development of procedures which would define the audit system the Board will implement. The Board has undertaken a trial audit of a pipeline company under its jurisdiction to evaluate its progress in this regard and the results were very encouraging. The lessons learned have been used to refine the system. The Board expects to undertake further audits of various pipeline companies in 1990.

Northern Pipeline Agency

In preparation for, and during the construction of, a new compressor station on the pipeline system of Foothills Pipe Lines Ltd., the Northern Pipeline Agency relied on Board staff for technical advice to assist it in carrying out its responsibilities under the *Northern Pipeline Act*.

Pipeline Incidents

The Board requires detailed reports of all incidents involving personal injury or fatality, pipeline malfunctions such as leaks, breaks, fires, or explosions, or any other event which results in a loss of service of a pipeline under its jurisdiction. The Board conducts public inquiries, if appropriate, to ascertain the cause of the incident and, when necessary, to establish specific measures to prevent a recurrence of that type of incident. These reports and inquiries are considered when reviewing pipeline safety, operational standards and regulatory requirements.

If a pipeline is damaged, the Board verifies that steps are taken to contain spills of hydrocarbons, to provide protection to the public and to property, and to repair the damaged pipeline and to return it to full service as soon as possible. The Board continues its surveillance of the site to ensure the effectiveness of the company's environmental rehabilitation program.

During 1989, the Board conducted various field inspections of pipeline incident locations to monitor the implementation of established emergency, safety and environmental protection procedures.

Table 6 shows the causes of pipeline incidents over the last five-year period. A total of 48 incidents occurred in 1989. Two fatalities were reported during the year.

Table 6
Causes of Pipeline Incidents 1984-1989

	1985	1986	1987	1988	1989
Defective Welds	5	0	3	3	5
Material Failures	4	5	4	7	12
Third Party Damage	6	3	8	6	2
Corrosion	5	10	8	4	3
Other*	11	10	15	18	26
Total	**31**	**28**	**38**	**38**	**48**

* includes workplace and construction accidents, operator error, earth movements, and other miscellaneous causes.

The apparent increase in pipeline incidents reported in 1989 is due to the introduction of an expanded definition of reportable incidents contained in the *Onshore Pipeline Regulations*, which came into effect on 1 September 1988. Previously, incidents, such as deaths or injuries requiring hospitalization, which occurred during construction were not defined as reportable incidents. Also, any discharge of toxic substances into the environment which occurs during the construction, operation or abandonment of a pipeline must now be reported to the Board.

On 20 June 1989, Parliament passed Bill C-2, an Act to establish the Canadian Transportation Accident and Safety Board and, on 29 June 1989, Bill C-2 was given Royal Assent by the Senate. A date for the coming into force of the Act by order of the Governor in Council has not been fixed as of yet. Once the Canadian Transportation Accident and Safety Board is established, it will have jurisdiction to conduct independent investigations and public inquiries, if necessary, into any commodity pipeline occurrence within the legislative authority of Parliament. The object of these investigations or inquiries will be to identify safety deficiencies and make recommendations in order to eliminate or reduce them. The Canadian Transportation Accident and Safety Board will have concurrent jurisdiction along with the National Energy Board to investigate and report on all pipeline incidents. The concurrent jurisdiction is complementary, as the bill provides that, where the investigation of a transportation occurrence involves both the Canadian Transportation Accident and Safety Board and the National Energy Board, the two parties shall take all reasonable measures to ensure that their activities with respect to the transportation occurrence are coordinated.

Approvals

Westcoast Energy Inc. received approval for and constructed the Aitken Creek pipeline loop located in the Peace River area of northern British Columbia. This 31-kilometre loop, estimated to cost $8.1 million, is required to accommodate additional volumes of gas delivered out of Unocal's storage at Aitken Creek that is related to the Laprise Offload Project approved by the Board in 1988, which would allow for the diversion of raw gas from the Taylor complex to the Fort Nelson mainline.

The Board also authorized Westcoast to build the Pine and Commotion pipelines located in the Pine River area of northern British Columbia. These 18 kilometres of new gathering lines are expected to cost $3.1 million. Construction of these facilities was deferred pending a review by all parties of the applicable tolls. The Board also approved an upgrade of the control instrumentation at the McMahon gas plant which is expected to cost $5.8 million.

During the year, the Board received and considered a number of applications from TransCanada PipeLines Limited to expand its pipeline system. The expansions would allow TransCanada to increase its deliveries of natural gas to its eastern Canadian and American markets. These applications are discussed in *Hearings and Inquiries.*

TransCanada received the Board's approval to purchase Union Gas' recently built 38-kilometre Kirkwall Line. This line, which links the Union Gas transmission system in southern Ontario with TransCanada's Niagara Line, will be purchased for $18 million. Actual transfer of ownership is expected to occur in early 1990. Modifications to the line to integrate it with the TransCanada system have been approved and will cost an additional $2 million.

Trans Mountain Pipe Line Company Ltd. received approval to upgrade the containment dykes for its oil tankage at the Burnaby Terminal, at a cost of about $6 million. The project involved dyke enlargements as well as structural improvements to meet current seismic design requirements.

In 1989, Interprovincial Pipe Line Company undertook important modifications at its Edmonton terminal. The project, with an estimated cost of $12 million, included a rework of the manifold system and the installation of new meters and an electric substation.

Pouce Coupé Pipe Line Ltd. received approval to construct a 26-kilometre pipeline extending from Dawson Creek, British

Columbia to a point southeast of Bay Tree, Alberta. The pipeline, estimated to cost about $2.8 million and designed to transport crude oil and high vapour pressure products, connects the facilities built by Canadian Hunter Exploration Ltd. and Norcen Energy Resources Ltd. to the Peace Pipe Line Ltd. system.

Canadian Hunter Exploration Ltd. received approval to build a 2.3-kilometre pipeline from its gathering system terminal at Noel, British Columbia to the system of the NOVA Corporation of Alberta. The pipeline is designed to transport sweet gas to the system.

The Board authorized Bonanza Oil and Gas Ltd. to build a 5.4-kilometre pipeline across the Saskatchewan/Alberta border to carry natural gas from Bonanza's gas wells in Saskatchewan to Petrolia Oil and Gas Ltd.'s gathering line in Alberta. After processing at the Petrolia plant, the gas will be transmitted back into Saskatchewan via the TransGas Ltd. pipeline.

In addition, the Board approved various other applications dealing with receipt and delivery facilities, pipeline replacements and modifications to existing pipeline facilities.

Environmental Matters

Environmental matters continued to be at the forefront of Canadian public concern in 1989. In its role of protecting the public interest, the Board continued to consider the environmental implications of energy projects it regulates and also introduced initiatives to enhance public notification requirements for projects which may have environmental or social effects.

Companies planning to construct and operate pipelines or power lines are required to minimize negative impacts and avoid extensive or irreversible damage to the land to be crossed. To ensure such action, the Board examines all phases of project planning, construction and operation.

The environmental impact statement submitted by the applicant as part of a project application is the important first step of the review process. The statement describes the proposed pipeline or power line corridor in its existing state, the anticipated impact of the project on that corridor, and the procedures to be implemented by the company to mitigate those impacts. The company's environmental impact statement is examined for completeness and accuracy in evaluating and assessing the impacts of the proposed construction on the environment, and the corresponding measures to be implemented to mitigate those impacts.

In addition, the Board ensures that, where negative effects on the environment cannot be avoided, companies implement the proper mitigative measures during the construction and rehabilitation of the affected area. Where there are identified potential impacts on the environment, the Board requires the development of an environmental issues list which is used as a method of tracking those impacts during the construction and operation of a project. The list complements the environmental impact assessment process and provides a focus for environmental protection activity during all phases of a project. The environmental issues concept has evolved to become a useful addition to the environmental protection process at the Board.

The Board inspects pipeline and power line construction project rights-of-way as part of its environmental protection program to ensure compliance with the companies' environmental protection procedures. Companies constructing energy transmission facilities also must submit post-construction monitoring reports which document the recovery of the rights-of-way following construction and update the environmental issues lists.

Furthermore, the Board is responsible for ensuring that pipelines are operated and maintained in an environmentally acceptable manner. The Board's activities include periodic inspections to monitor the condition of rights-of-way and inspections of pipeline incident sites to ensure that environmental protection, restoration and maintenance measures are fully implemented. The Board conducts inspections of pipeline pump and compressor stations, which include noise surveys and inspections of hazardous materials handling and storage. In addition, the Board monitors the operation of several gas plants operated by Westcoast Energy Inc. with particular emphasis on ensuring the release of safe levels of sulphur emissions and the discharge of appropriately treated effluents from waste-water ponds.

In 1989, the Board carried out several environmental inspections. They included surveillance of the 1989 pipeline construction carried out on the TransCanada PipeLine Limited system in Saskatchewan, Manitoba, Ontario and Quebec; the St. Clair Pipelines Ltd. crossing of the St. Clair River south of Sarnia; and construction by Westcoast Energy Inc. associated with the Laprise Off-Load Project, north of Fort St. John, British Columbia. The Board found that the projects were constructed in an environmentally acceptable manner, using proper mitigative and restorative techniques. Due to the public interest which led the Board to review the environmental conditions in the certificate authorizing the St. Clair Pipelines project, the

Board decided to implement full-time environmental inspection for the duration of construction. The mitigative measures and monitoring program carried out by St. Clair Pipelines were part of the environmental protection requirements set down by the Board. The companies will be monitoring their rights-of-way next summer, submitting environmental monitoring reports in December 1990, and implementing remedial action where it is deemed necessary.

Board inspectors also monitored the rights-of-way of recently completed projects. They included TransCanada's 1988 looping projects on the Niagara Line, and the Dawn and St. Mathieu extensions in Ontario and Quebec; and Westcoast Energy Inc.'s Umbach Line, North Jedney Extension and Redwillow Line in northeastern British Columbia. The annual overflight inspection of the Interprovincial Pipe Line (NW) Ltd. pipeline in the Northwest Territories and northern Alberta was conducted during the summer. The recovery of the rights-of-way inspected in 1989 continues satisfactorily with few environmental impacts resulting from the construction projects. Steep slopes and unstable soils have hindered Westcoast's rehabilitation efforts in northeastern British Columbia, an area particularly susceptible to terrain disturbance. As a result, Westcoast has had to be especially diligent in applying remedial measures in order to prevent further erosion and stabilization concerns. The companies' ongoing monitoring and surveillance programs help to ensure that any future site-specific concerns will be addressed.

Under its periodic operational inspection program, the Board examined the Interprovincial Pipe Line Company system from Sarnia to Montreal, the Trans-Northern Pipelines Inc. system from Nanticoke to Montreal, and the Foothills Pipe Lines Ltd. system in Alberta and Saskatchewan. As well, two portions of the TransCanada system were inspected, including the condition of the right-of-way in Saskatchewan and Manitoba, and the restorative work associated with the Bell Canada fibre optic cable system on TransCanada's right-of-way in northern Ontario. All the rights-of-way were found to be generally in good condition with no significant differences in vegetative or crop cover from that of the adjacent lands. The restoration efforts have been effective along the right-of-way in northern Ontario and only a few areas of concern require further work.

As part of its program of periodic facilities inspections, the Board monitored a loading of heavy crude at the Westridge oil loading terminal of Trans Mountain Pipe Line Company Ltd. Trans Mountain has developed loading procedures for sour crude oil which are designed to minimize odour release.

During the loading, no odours were detected in the vicinity of the vessel. Because no odour emission problems occurred during that loading, the Board, in its judgement, saw no need to monitor other heavy crude oil loadings at Westridge.

The inspection of rehabilitation measures undertaken to restore incident sites affected by oil and products spills formed part of the Board's environmental monitoring program. During 1989, a total of 14 spill sites were assessed for rehabilitation and restoration. In Saskatchewan, six of the eight sites inspected were considered fully restored, five on the system of Westspur Pipe Line Company (1985) Inc. and one on the Wascana Pipe Line Ltd. system. On Interprovincial's pipeline system in Alberta, one site of a total of four was considered restored, with rehabilitation progressing slowly at the remaining three sites. Further monitoring will be required at two other Interprovincial incident sites, one in Ontario and the other in Quebec.

The Board continued its environmental program of collecting data on pump and compressor station noise emissions. Data gathering was completed for the TransCanada system in Ontario and has commenced at stations in Quebec and Saskatchewan.

In 1989, a program was initiated to ensure that polychlorinated biphenyl (PCB) wastes at all facilities regulated by the Board were being stored safely. PCBs are found in oil drained from electrical equipment that has been removed from service, not in the product being transported by the pipeline. Companies were required to provide inventories of PCBs in use and in storage at their facilities, and all 37 storage sites were inspected to ensure that they were in full compliance with the federal regulations on PCB storage. The Board will continue to update the PCB inventory on an annual basis and to inspect storage sites to ensure the continued protection of the environment and public safety.

Memorandum of Guidance on Early Public Notification

During 1989, a draft Memorandum of Guidance dealing with early public notification of proposed energy projects was sent for comment to all companies under the Board's jurisdiction, public interest groups and government agencies. The guidelines will ensure that public concerns are made known to the Board at an early stage and are considered and evaluated by applicants proposing energy projects which may have environmental or social effects.

Under the proposed guidelines, companies regulated by the Board which plan to build or expand their pipelines, export

electricity, or export from the west coast crude oil which might affect air quality must implement a public information program. Depending on the expected environmental or social impact of the proposed project, the public information program could vary from newspaper notices to a series of public meetings in affected communities.

The early public notification requirement will enable the companies to identify the affected parties and their respective concerns regarding a proposed pipeline or project. This will permit applicants to address and, where possible, resolve the concerns at an early stage in the planning process and to adopt appropriate procedures in their application.

The guidelines will provide interested parties with sufficient information to determine the degree to which they could be affected. The public will be given the opportunity, before the application is filed, to express its concerns to the applicant and to the Board. Companies will also be required to provide the public with adequate time to comment on the proposal and to ensure that expert staff are available to respond to any questions asked by the affected parties.

Public Notices

In the past, when an application was submitted to the Board and a hearing date was established, companies were required to publish newspaper notices providing general information with respect to the proposal. In keeping with the Board's initiative to supply the public with greater detail of an application before it, the Board has modified its publishing requirements for "Notices of Public Hearing". The revised Directions on Procedure require companies to provide each local publication with a plan at a sufficient scale to identify the location of the proposed general route. The new procedures also require that the notice identify the locations where the pipeline route sheets are available for public viewing. In this way, individuals can determine whether they would be affected by a project and whether they wish to intervene at the hearing.

Detailed Route Procedures

In 1989, the Board did not hold any detailed route hearings concerning the crossing of private lands by a pipeline or power line; however, the Board did exempt several projects from the detailed route procedures where new lands were required. In each case, the applicant demonstrated that options or easements had been obtained on all necessary lands.

However, the Board did have an application before it which included two pipeline routes, both requiring separate new

rights-of-way. Both projects were proposed by TransCanada as part of its application for new facilities in 1990.

The first project was the Gananoque Extension in Ontario. The application for the related gas exports was denied by the Board and TransCanada would be required to re-apply to the Board if it wishes to pursue this project. The second project was the Napierville Extension in Quebec. That proposal was approved by the Board subject to the condition that the related export licence is granted. The licence application is scheduled to be reviewed by the Board in March 1990 and, if approved, it is anticipated that a detailed route hearing will be scheduled in 1990.

... there was no need for the Board to issue any third-party crossing approvals in 1989; in previous years the Board had issued an annual average of 800 orders approving pipeline crossings.

Third Party Crossing Matters

In 1989, the Board completed its first full year under the new Pipeline Crossing Regulations. The regulations establish the conditions under which excavation and construction activities affecting pipelines can be conducted safely by third parties. According to one of the conditions of the regulations, excavators or utilities do not require leave of the Board if they obtain the permission of the pipeline company and accept any attached conditions. As a result of the effective application of the regulations, there was no need for the Board to issue any third-party crossing approvals in 1989; in previous years the Board had issued an annual average of 800 orders approving pipeline crossings.

As part of its mandate to monitor compliance with the regulations, the Board conducted 26 detailed investigations of third party violations which were reported by pipeline companies. A number of random field inspections were also carried out across Canada to monitor utility construction activities affecting pipelines. The principal objective of the detailed investigations is to prevent a recurrence of third party violations of the regulations, while the random inspections are designed to encourage safe construction practices near pipelines.

In order to promote safe excavation practices in the vicinity of pipelines and to inform the public of their responsibilities under the *Pipeline Crossing Regulations*, the Board made presentations to affected organizations and has met with various utilities and excavators across the country.

Financial Regulatory Matters

The Board is responsible, under Part IV of the *Act*, for ensuring that the transportation tolls charged by the pipelines under its

jurisdiction are just and reasonable and that there is no unjust discrimination.

The number of pipelines under the Board's jurisdiction during 1989 is a total of 49, of which 26 are gas transmission lines, and 23 are for the transportation or storage of oil and petroleum products.

For purposes of financial regulation, the pipelines are divided into two groups: Group 1 consists of the ten major pipeline companies and Group 2 encompasses the remaining smaller pipeline companies.

This grouping of the pipelines, which originated in 1986, was designed to reduce the degree of financial regulation imposed on the smaller pipelines, while continuing full financial regulation of the large pipelines in which the public has a much greater interest.

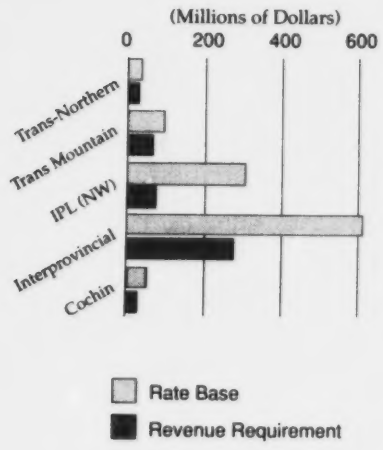
While the Board may undertake, on its own initiative, a review of the tolls of any company under its jurisdiction, the tolls of the Group 2 companies are normally reviewed only on receipt of a complaint. Otherwise, the monitoring of the Group 2 companies consists primarily of reviewing their annual financial performance.

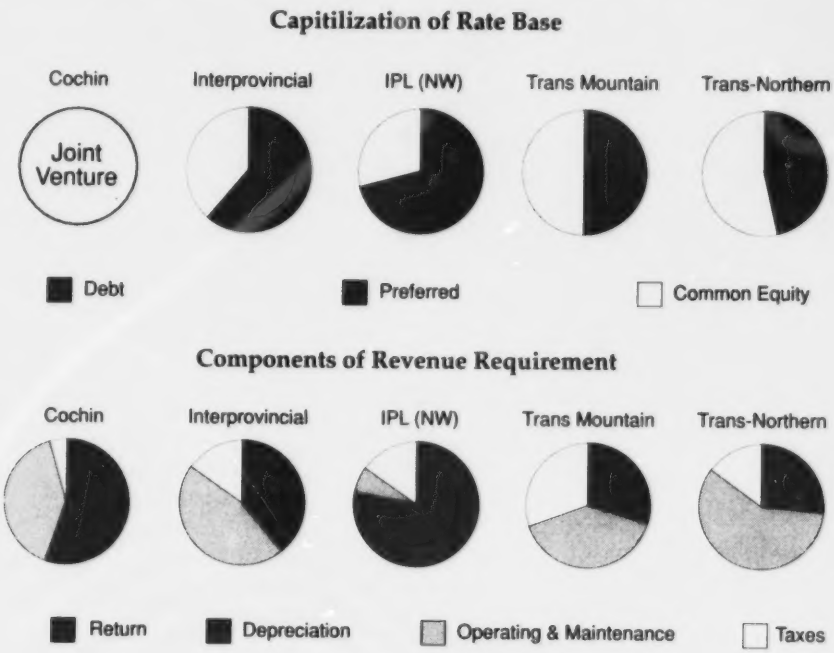
The Group 1 companies are constantly monitored through review of quarterly surveillance reports filed by the companies and the periodic audit of their operations. These companies must receive Board approval for any increase in their tolls or amendments to their tariffs before implementation. Applications for toll adjustment can be reviewed by means of an oral public hearing, where the extent of the change and the degree of public interest warrant it. Other adjustments are conducted by means of written submissions.

Within Group 1, there are, however, three pipeline companies, Alberta Natural Gas Company Ltd., Interprovincial Pipe Line (NW) Ltd. and Cochin Pipe Lines Ltd., which, since 1987, have had their tolls and tariffs regulated on a complaint basis only, to reduce the regulatory burden.

In July 1989, the Board received its first complaint regarding the tolls and tariffs of a Group 1 company regulated on a complaint basis, that company being Cochin Pipe Lines Ltd. After consultation with interested parties and the company, the Board resolved the complaint in October 1989.

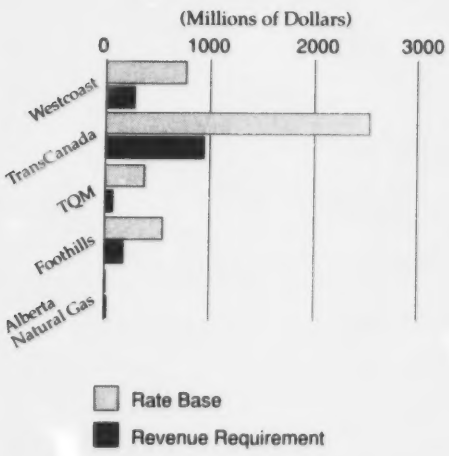
Figure 23
Group 1 Oil Pipelines
Rate Base and Revenue Requirement

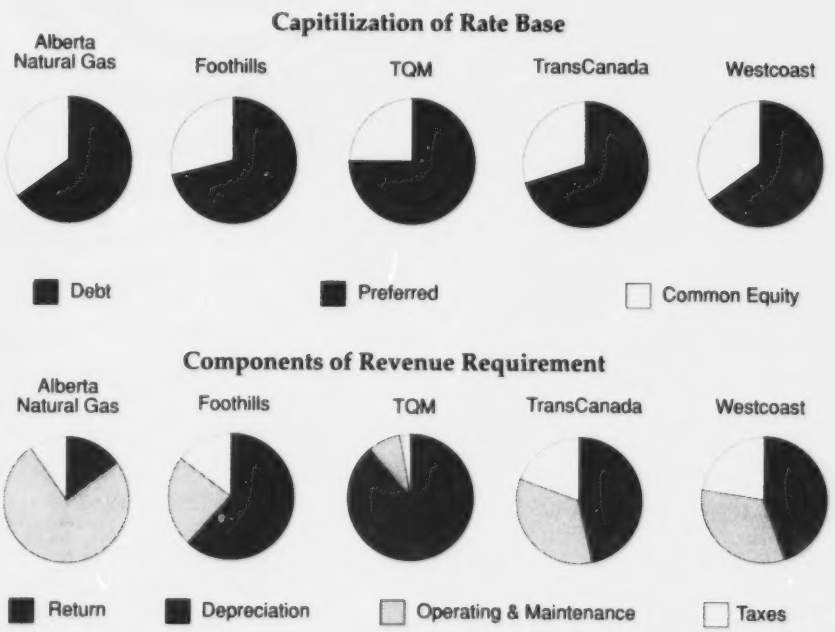




Reference: Financial Regulation Appendix 1

Figure 24
Group 1 Gas Pipelines
Rate Base and Revenue Requirement





Reference: Financial Regulation Appendix 2

Toll adjustments through public hearings are reported under *Hearings and Inquiries.*

A number of non-hearing toll adjustment proceedings took place in 1989, some having been initiated in 1988. Also, proceedings initiated late in 1989 will not be completed until early in the new year.

In March 1988, Trans-Northern Pipelines Inc. applied for a 5.5-percent increase in tolls. The Board reviewed the company's application and determined that an increase of only 0.8 percent was justified. New tolls became effective 1 April 1989.

For Trans Mountain Pipe Line Company Ltd., new tolls came into effect on 1 January 1989, following an application filed in October 1988. A further application for a toll adjustment was filed on 16 October 1989, because of a variance in throughput, and new tolls were approved on 16 November 1989. Meanwhile, on 30 October 1989, an application was filed applying for an adjustment of the company's tolls for 1990, based on anticipated increases in its cost of service. The Board expects to approve new tolls early in 1990.

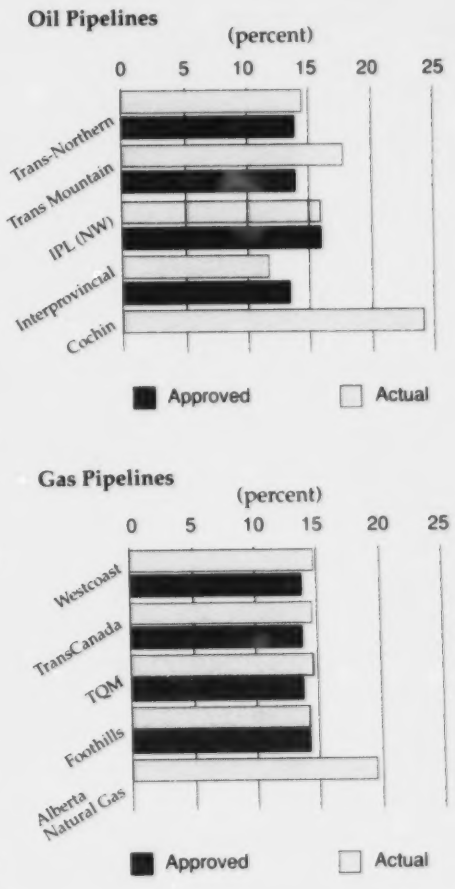
In September 1989, Foothills applied to the Board for a reduction in the depreciation rates applicable to its pipeline. Following receipt of comments from interested parties, the Board approved the revised depreciation rates, as applied for, effective 14 September 1989. The company filed amendments to its tariff reflecting the new depreciation rates.

In November 1989, Foothills applied to the Board for an order authorizing an amendment to the treatment of costs associated with the Crane Lake Meter station. This change, which related to the provision of firm service to North Canadian Oils Limited on Foothills (Sask)'s Zone 9, was approved by the Board with an effective date of 6 December 1989.

Also late in the year, Interprovincial Pipe Line Company applied for an adjustment of its tolls for 1990, based on anticipated increases in its cost of service. A request from the Independent Petroleum Association of Canada, that Interprovincial's toll adjustment procedures be reviewed and that Interprovincial's 1991 test year be examined in an oral public hearing, is also being examined by the Board.

The Board reviewed in 1989 the continued appropriateness of Alberta Natural Gas Company Ltd.'s existing gas transportation contracts, which are filed as tariffs with the Board. Specifically,

Figure 25
Group 1 Companies
Rate of Return on Common Equity



1989 Common Equity

	Ratio	% Return
Oil Pipelines		
Cochin	N/A	24.22
Interprovincial	39	11.52
IPL (NW)	29	16.00
Trans Mountain	50	17.70
Trans-Northern	54	14.22
Gas Pipelines		
Alberta Natural Gas	35	18.41
Foothills	29	14.25
TQM	25	14.79
TransCanada	30	14.60
Westcoast	35	13.86

Reference: Financial Regulation Appendices

the Board was concerned that certain aspects of the tariffs were not consistent with the provision of open-access and the provision of transportation services on a non-discriminatory basis. Taking into account the comments of industry, the Board directed Alberta Natural Gas to review its gas transportation contracts in consultation with its shippers and to file a uniform tariff, covering all transportation services offered by the company, for the Board's approval in 1990.

Also during 1989, the Board reviewed Alberta Natural Gas' method of calculating its monthly cost of service for tariff and billing purposes. In December 1989, the Board directed the company to modify this method of calculation. This action will effectively reduce its rate of return on equity to 13.15 percent for 1990 from a forecast level of approximately 18 percent.

Since its inception, the Board has used regulatory audits as a means of verifying and monitoring the financial operations of the regulated companies. Section 129 of the *National Energy Board Act* is specific in its requirements that the companies under the Board's jurisdiction make their records available for inspection by representatives of the Board. During 1989, in response to concerns expressed by some pipeline companies regarding the Board's access to certain confidential corporate records, the Board undertook a review of the role of its financial regulatory audits. As a result, the Board re-affirmed the importance of these audits as a regulatory tool. In October 1989, the Board adopted a Financial Regulatory Audit Policy which includes a set of uniform and consistent audit terms of reference, objectives and guidelines to apply to the companies under its jurisdiction. Of particular interest is the Board's undertaking not to reveal any sensitive material on the public record, but to request a company to do so if and when it becomes necessary, thus providing the company with an opportunity to make its case before the Board for continued confidentiality. The audit terms of reference, objectives and guidelines were conveyed to the companies.

The 1989 financial information for the Group 1 companies is found in the Financial Regulation Appendices 1 and 2. These tables are the source for the information on rate base and revenue requirements illustrated in Figures 23 and 24, for the oil and gas pipelines, respectively. Figure 25 provides a comparison of the rates of return on common equity approved by the Board for each of the companies, with the actual rates earned.

Legal Actions

Cyanamid Canada Pipeline Inc.

On 6 April 1987, Cyanamid applied for a review of the Board's December 1986 decision that the Board had jurisdiction over a short pipeline to be constructed by Cyanamid from its plant at Welland, Ontario, to the TransCanada pipeline at Blackhorse Station. In view of a judgment in March 1987 of the Divisional Court of the Supreme Court of Ontario, which had confirmed the exclusive jurisdiction of the Ontario Energy Board over typical by-pass pipelines in Ontario such as Cyanamid's proposed facilities, Cyanamid also requested that the question of jurisdiction be referred to the Federal Court of Appeal to confirm federal jurisdiction over its proposed facilities. In April 1987, the Board decided to proceed with the review and to refer the issue of jurisdiction to the Federal Court of Appeal.

On 27 November 1987, the Federal Court of Appeal ruled that the Board did not have jurisdiction over the proposed Cyanamid facilities. Cyanamid then applied to the Supreme Court of Canada for leave to appeal the Federal Court of Appeal's decision. The application was heard by the Court on 25 April 1988. In a decision rendered from the bench, the Court granted leave to appeal.

Following the Ontario Divisional Court judgment, the Lieutenant Governor of Ontario brought a reference on the matter to the Ontario Court of Appeal. The reference was heard in October 1987 and the Court of Appeal rendered its decision in February 1988 affirming that by-pass pipelines similar to that proposed by Cyanamid fell within provincial jurisdiction. Cyanamid appealed the decision of the Court of Appeal of Ontario to the Supreme Court of Canada.

Cyanamid wholly discontinued its appeal to the Supreme Court of Canada on 25 September 1989. This action was taken prior to the hearing of the subject.

Union Gas Limited

On 20 December 1988, Union Gas filed with the Federal Court of Appeal an application for leave to appeal the Board's November 1988 decision in which the Board denied an application by Union Gas to review that part of the Board's July 1988 Reasons for Decision (GH-2-87) relating to the Kirkwall Line and for an order to vary Certificate GC-73 issued to TransCanada PipeLines Limited following the hearing held pursuant to GH-2-87.

In its November 1988 Reasons for Decision, the Board indicated that it was of the view that the Union Gas application was tantamount to a request to suspend the certificate issued to TransCanada, a request that the Board was not empowered to entertain except under the circumstances set out in section 56 of the *National Energy Board Act*, namely, if the holder of the certificate consents to such a suspension or has breached any term or condition attached to the certificate.

Union Gas had argued that the Board erred in law in determining that it had no jurisdiction to hear the applicant's motion under either subsection 21(1) or subsection 21(2) of the *Act*.

Some time after leave to appeal was granted, the Federal Court of Appeal asked Union Gas to indicate whether it wished to proceed with the appeal or to hold the file in abeyance pending the completion of TransCanada's purchase of Union Gas' Kirkwall Line. Union Gas discontinued the appeal in May and filed a notice of discontinuance with the Court shortly thereafter.

Midland Cogeneration Venture Limited Partnership

On 31 July 1989, Midland Cogeneration Venture Limited Partnership applied to the Federal Court of Appeal for leave to appeal the Board's June 1989 decision (GH-8-88) in which the Board authorized five Canadian companies to export natural gas to Midland and Consumers Power Company and conditioned the licences so that the exports to Midland could not exceed those to Consumers in any one year.

After obtaining leave to appeal in September 1989, Midland filed a notice of appeal with the Federal Court of Appeal on 17 November 1989. By a letter to the Court dated 29 November, Counsel for Midland indicated that Midland was assessing the timeframe within which it wished to pursue this appeal and requested that the Court defer composition of the appeal case until Midland finalized its plans and so advised the Court.

In related actions, the five licence-holders applied to the Board pursuant to subsection 21(2) of the *National Energy Board Act* for an amendment to the licences in order to modify the conditions that link the sales to Midland to those made to Consumers.

Western Gas Marketing Limited, as agent for TransCanada PipeLines Limited, Indeck Gas Supply Corporation, Niagara Mohawk Power Corporation and Shell Canada Limited

On 20 November 1989, the Board issued its decision in respect of GH-1-89 in which it approved four applications for gas export licences and denied four. The Board's Reasons for Decision were issued on 21 December 1989.

On 20 December 1989, Western Gas Marketing filed with the Federal Court of Appeal a notice of motion requesting an extension of time within which to file an application for leave to appeal. The *National Energy Board Act* requires that applications for leave to appeal be filed with the Court within one month after the making of the decision appealed and, in the case at hand, Western Gas Marketing had not had an opportunity within the one-month period to review the Board's Reasons for Decision. On 3 January 1990, the Court granted the application and provided Western Gas Marketing with an extension of fifteen days following receipt of the Reasons for Decision for filing its application for leave to appeal.

On 19 December 1989 Indeck also filed an application for an extension of time within which to file an application for leave to appeal as well as a notice of application for leave to appeal. Shell Canada filed a similar application for an extension of time on 19 December 1989. On 20 December 1989 Niagara Mohawk filed an application with the court for leave to appeal the Board's decision.

All these actions relate for the most part to the fairness of the procedure used by the Board in conducting its benefit-cost analysis in assessing the export applications in question and to the question of whether the use of benefit-cost analysis to restrict exports is contrary to the Free Trade Agreement.

Industrial Gas Users Association

On 21 December 1989, IGUA applied to the Federal Court (Trial Division) for orders (a) setting aside the decision taken at the GH-5-89 pre-hearing conference to not include alternative toll methodology (i.e. rolled-in vs. incremental) in the list of issues to be considered in GH-5-89, (b) requiring the Board to add the issue to the list of issues and (c) prohibiting the Board from commencing GH-5-89 until the issue is included. The applications are to be heard by the Federal Court in February 1990.

Legislation and Regulations

... includes changes to the Act and Regulations under which the Board operates.

The following section outlines changes that were made during 1989 to the Act, Regulations, and Rules under which the Board operates. The Board's quarterly regulatory agendas provide additional detail on this subject.

Amendments to the National Energy Board Act

Bill C-23, *an Act to amend the National Energy Board Act and to repeal certain enactments in consequence thereof,* was passed by the House of Commons on 14 December 1989. At year-end, it was being considered by the Senate.

The purpose of Bill C-23 is twofold. First, it gives effect to the government's policy respecting the regulation of electricity trade announced in September 1988. Second, it provides for a number of minor changes to the *National Energy Board Act* that will reduce costs, streamline the Board's operations and reflect the reduced level of regulation that has resulted from the government's market-based approach to energy policy.

The basic principle governing the government's policy on the regulation of electricity trade and underlying the amendments contained in Bill C-23 is that there should be no unwarranted duplication of federal and provincial regulation.

Applicants seeking to export electricity or to build an international power line will continue to submit their proposals to the Board. Upon receiving the application, the Board will ensure that notice is published in the Canada Gazette, and in such other publications as the Board considers appropriate.

The Board will then carry out an initial review of the application. If the Board is satisfied that the assessments and mitigating measures carried out by the applicant and the sponsoring provinces have adequately addressed all relevant concerns, the applicant will receive its authorization in the form of a permit. However, if there are reasons to believe that the proposal may not be in the public interest, the Board will recommend to the Minister of Energy, Mines and Resources that a public hearing be held. The Board's advice will be made public.

In deciding whether there is a need to complement measures taken by the applicant and the sponsoring provinces, the Board shall have regard to all considerations that appear to it to be relevant, including any impacts that a proposed export or international power line might have on provinces other than the sponsoring province, the environmental impacts of the proposal and, in the case of a proposed export, whether Canadians wishing to buy electricity from the applicant to serve their own domestic needs have been able to do so on terms no less favourable than the terms being offered to export customers.

If the Governor in Council, on the advice of the Minister, accepts the Board's recommendation, there will be a public hearing conducted by the Board. The Board will either deny the application or issue a licence in the case of exports or a certificate in the case of power lines, subject to the approval of the Governor in Council.

Bill C-23 also proposes changes in the way that detailed routing of international power lines is determined. In all cases, the Board will continue to authorize the general corridor through which the line will pass but the precise location of the line within this corridor will be determined by provincial regulatory procedures, and any expropriation that may be necessary will be carried out under provincial laws. However,

as an exception to this general procedure, an applicant may elect to have federal law govern the precise location and construction of an international power line.

The procedures for the regulation of interprovincial power lines are unchanged from those set forth in the present *Act*. For the most part, such lines will be regulated by the provinces through which they pass. However, the Governor in Council may, by order, designate that an interprovincial power line be certificated by the Board. When such an order is made, the detailed location and construction of the line will be governed under federal law.

Finally, the maximum duration of export authorizations for electricity currently limited to 25 years will be extended to 30 years.

The proposed amendments that do not relate specifically to electricity are in the nature of "housekeeping amendments" such as the redefinition of certain terms to facilitate the application of the *Act* or the clarification of certain powers of the Board with respect to such matters as accident inquiries, accounting practices and repairs to pipelines. More significant changes provide for a reduction in the number of permanent Board members from 11 to a maximum of 9, the deletion of the three Associate Vice-Chairmen's positions and the introduction of cost-recovery powers for the Board.

Onshore Pipeline Regulations

The *Onshore Pipeline Regulations* came into effect in 1988. These regulations combined and replaced the *Oil Pipeline Regulations* and *Gas Pipeline Regulations* and provide for the safe design, construction and operation of onshore oil and gas pipelines.

The Order in Council making the regulations stipulated that the regulations were made by the Governor in Council, where in fact, it should have cited that it was the National Energy Board, with the approval of the Governor in Council, that was making the regulations. It was necessary to remake the regulations under the appropriate regulation-making authority. The regulations were remade and came into effect on 1 July 1989.

The regulations will be amended to reflect the outcome of Board-industry deliberations on the 12 recommendations

included in the Board's report of June 1986 on an accident on Interprovincial's system in February 1985.

Offshore Pipeline Regulations

On 24 November 1988, the Board issued for comment the second draft of its new *Offshore Pipeline Regulations*. These regulations provide for safe design, construction, and operation of offshore pipelines. The CSA standard "CAN/CSA-Z187-M87, Offshore Pipelines", forms the technical basis for the Board's new *Offshore Pipeline Regulations*. Interested parties had until the end of April to submit comments A final draft of the regulations was approved by the Board on 12 July. The draft regulations have been submitted to the Department of Justice for examination.

Rules of Practice and Procedure

The Board issued a revised draft of its *Rules of Practice and Procedure* and schedules on 7 May 1987 and directed all parties to use them as of that date. The Department of Justice has completed an initial examination of the Rules and the Board is reviewing them in light of the amendments to the Act as a result of Bill C-23, recent changes in export regulation and comments received from the Department of Justice.

The revised draft will require further examination by the Department of Justice and publication in the Canada Gazette.

International Power Line Crossing Regulations

During 1988, on the advice of the Department of Justice, the Board divided its proposed International Power Line Crossing Regulations into two sets of regulations, as follows:

1. International Power Line Crossings, Construction and Abandonment Regulations

These regulations deal with crossings by international power lines as well as the company's responsibilities to maintain crossing records, abandon crossings, and report incidents.

2. International Power Line Crossing Regulations

These regulations deal with crossings of international power lines and set out the terms and conditions under which leave of the Board to cross such power lines need not be obtained.

The scope of these regulations is being re-examined in view of the new electricity export policy and the provisions of Bill C-23 (please refer to *Amendments to the National Energy Board Act* above). The regulations are subject to examination by the Department of Justice and publication in the Canada Gazette.

National Energy Board Part VI Regulations

The *Part VI Regulations* are being reviewed by the Board to reflect recent changes in export regulation and changes suggested by the Standing Joint Committee on Regulatory Scrutiny including the removal of those provisions respecting export and import reporting requirements, which are now included in the proposed *Export and Import Reporting Regulations* (see below).

The revised *Part VI Regulations* and the new proposed *Export and Import Reporting Regulations* were submitted to the Department of Justice but their examination has been held in abeyance pending further amendments required by the coming into force of Bill C-23 and the market-based approach to export regulation.

Export and Import Reporting Regulations

These proposed regulations would require persons exporting oil, natural gas, or electricity, or importing natural gas under licence or order to provide certain information to the Board. The information is similar to that currently required by the *Part VI Regulations*. However, on the suggestion of the Standing Joint Committee on Regulatory Scrutiny, the Board decided to remove the reporting requirements from the *Part VI Regulations* and make new regulations under subsection 129(1).

The regulations, which will require Governor in Council approval, will be processed together with the above-noted changes to the *Part VI Regulations*.

Cost Recovery Regulations

Pursuant to the government's cost recovery initiative introduced in the May 1985 Budget, the Board completed a feasibility study on recovering the costs of regulation from companies under its jurisdiction. The study received Treasury Board's approval in principle in November 1988. Consultation with industry took place during 1989 and the Board has submitted to the Minister its implementation proposal for Treasury Board approval.

Bill C-23 gives to the Board the necessary powers to recover costs and draft *Cost Recovery Regulations* have been submitted to the Department of Justice. The coming into force of these Regulations is subject to Bill C-23 becoming law and to the approval of Treasury Board.

Organization

Person-Year Allocation: 336
Budget: $24.4 million

Members of the National Energy Board

The membership of the Board as of 31 December 1989 was:

Roland Priddle	Chairman
Jean-Guy Fredette	Vice-Chairman
R. Byron Horner, Q.C.	Member
William G. Stewart	Member
A. Boyd Gilmour	Member
Anita Côté-Verhaaf	Member
Martha Musgrove	Member
David B. Smith	Temporary Member
Kenneth W. Vollman	Temporary Member

Kenneth Vollman was re-appointed a temporary Board Member for a three-year term effective 30 September 1989.

In October 1989, the government announced its intention to appoint Céline Bélanger and Roy Illing as Board Members commencing 1 January 1990.

Standing Panels

In early 1989, the Board suspended the practice of referring non-hearing regulatory matters to the three standing panels, Energy Commodities, Pipeline and Financial Regulatory. Since the suspension, all non-hearing regulatory work has been referred to the full Board.

Staff

For the fiscal year 1989-90 the Board's budget was $24.4 million with a person-year allocation of 336.

The Board's offices and branches are described below; the inside back cover of this report lists the Board's senior staff.

The **Executive Director** is the Board's senior staff member and Chief Operating Officer. The responsibilities include the overall management of the Board, the acquisition and allocation of human and financial resources, the efficiency and effectiveness of Board activities and operations and the provision of advice on such matters as the Chairman may deem appropriate.

The **Finance and Administration Branch** coordinates and administers the financial and administrative policies under which the Board operates. It provides advice and services relating to accounts processing, financial planning and budgeting; property, materiel, records and mail management. It also provides accounting services for the Northern Pipeline Agency.

The **Personnel Branch** provides advice and services in the areas of staffing, human resources planning, training, employment equity, official languages, classification, staff relations, safety and health, pay and benefits, conflict of interest, employee assistance, merit awards and security.

The **Planning and Review Branch** is responsible for the Board's strategic and operational planning process, program review and evaluation, the internal audit program and the management practices program.

The **Information Technology Branch** is responsible for computer systems services, word processing support, data processing support and telephone services. This includes

consultative service on computer operations, data management, program design and development, and an advisory service on the latest data processing techniques and applications. Branch responsibilities also include the integration of information and processing systems and services for the Board.

The **Director General, Energy Regulation** is responsible for the integration of all staff activities involving the regulation of energy exports and international power lines. This encompasses planning and coordinating all work affecting the regulation of international power lines, exports of oil, gas, and electricity under Part VI of the *National Energy Board Act*, and coordinating the analysis of all matters related to energy demand and supply.

The **Economics Branch** is responsible for evaluating the economic worth to Canada of applications before the Board to licence exports and to certificate pipeline and international power line projects. The Branch develops, in collaboration with others in the Board, general approaches to energy regulation and pipeline toll and tariff structures which involve considerations of economic efficacy. The Branch is responsible for preparing detailed projections of energy demand in Canada, macro-economic projections for the long-term performance of the Canadian economy, long-term outlooks for Canadian exports of natural gas and electricity to the American market and long-term scenarios of world oil prices, these activities largely in support of the Board's Supply and Demand Reports, market monitoring requirements and evaluations of export licence and facilities applications. The Branch also advises on the state of competitive conditions in energy markets, to the extent required for the Board's regulatory mandate.

The **Energy Supply Branch** is responsible for advising on matters relating primarily to the suppy of conventional and synthetic crude oil, bitumen, natural gas and natural gas liquids. The Branch prepares both short-term and long-term projections of supplies of these energy commodities from conventional, oil sands and frontier sources, based on its own studies and consultations with industry and other groups. The Branch also prepares estimates of established oil and gas reserves in Canada; conducts analyses of ultimate resource potentials and reserves additions rates; evaluates the supply costs and economics of resource projects; monitors developments in the energy sector, particularly the producing industry; and, investigates potential new energy supply sources.

The Branch undertakes these activities in support of both the Board's regulatory and advisory responsibilities. These activities are conducted in both the Board's Calgary and Ottawa offices.

The **Electric Power Branch** advises on matters relating to electricity export licensing, international power line certification, and regulatory surveillance. The Branch prepares supply and demand forecasts for electricity that are used in dealing with electrical and other applications, and in support of the Board's Supply and Demand reports, reviews the North American market for electricity, and provides advice on matters under federal jurisdiction that relate to the production, transportation, sale, and exchange of electricity.

The **Gas and Oil Branch** provides advice to the Board on oil and gas matters including evaluation of oil and gas markets and commercial transactions; transmission, processing and distribution of commodities. It also synthesizes such information into assessments applicable to the Board's regulatory roles. The Branch is responsible for export and import regulation, monitoring, and for matters related to traffic and discrimination in service for gas and oil pipelines. The Branch collects and disseminates data on exports and imports including volumes and prices, and also prepares and supplies data on the consumption and transportation of crude oil, petroleum products, gas products and natural gas, incorporating estimates of short-term domestic and export demand and pipeline throughputs.

The **Director General, Pipeline Regulation** integrates all staff activities relating to the regulation of gas, oil, and petroleum products pipelines. This encompasses the design, construction, operation, safety, and environmental concerns specified under Part III of the *National Energy Board Act* and matters regarding traffic, tolls, and tariffs under Part IV of the *Act*.

The **Environment Branch** provides advice on the protection of the environment during the construction and operation of pipeline and power line facilities and on the protection of land-owner rights with respect to land acquisition. It advises on the environmental consequences of electricity and natural gas exports including the impacts resulting from the generation, production and end-use of that energy. In addition, Branch staff provide advice on the technical requirements related to third-party crossings on pipeline rights-of-ways.

The **Pipeline Engineering Branch** advises on matters relating to pipeline certificates issued under the *National Energy Board Act* and for the regulation of the safety of pipeline facilities under the Board's jurisdiction. The Branch is the Board's principal source of advice on technical matters included in applications by pipeline companies for facilities construction. Board staff in this Branch also administer certain portions of the *Canada Labour Code* relating to pipeline worker safety.

The **Financial Regulation Branch** has the primary responsibility for tolls and tariffs, financial regulatory advice and costs of transportation under specific areas of the *National Energy Board Act.* As such, its main function includes the provision of expert financial advice to the Board and to the hearing panel on all toll applications. It also audits the accounts of pipeline companies under the Board's jurisdiction and monitors the financial performance of pipelines on a regular basis to ensure that tolls are just and reasonable.

The **Law Branch** provides legal advice to the Board on all matters relating to the Board's powers and responsibilities, acts as Counsel for the Board at public hearings, and represents the Board in proceedings before the Federal and Supreme Courts of Canada.

The **Office of the Secretary** receives all applications and submissions and coordinates their consideration by the Board. It advises on the scheduling of hearings, and makes all administrative arrangements for public hearings in Ottawa and across Canada. In addition, it provides media and public relations services, publications services and operates the Board's library. It administers the *Access to Information and Privacy Acts* and coordinates translation services with the in-house translation unit provided by Secretary of State.

Functions and Responsibilities

... oil, natural gas and electricity exports; pipeline and power line construction; pipeline tolls and tariffs; energy studies.

Responsibilities Under the National Energy Board Act

The Board has two principal responsibilities under the *National Energy Board Act*:

- to regulate specific matters concerning oil, gas and electricity in the public interest, and
- to advise the government on the development and use of energy resources.

The Board has the authority to hold inquiries into any aspect of energy matters under its jurisdiction and to issue reports for the use and information of government, Parliament, and the general public.

The regulatory roles of the Board are described below.

Export Licences and Orders

The Board issues long-term licences for the export of oil, gas, and electricity. Such licences are normally granted following public hearings. In issuing export licences, the Board must satisfy itself that, among other things, the proposed export is in the Canadian public interest. The Board also issues orders for short-term exports of energy commodities subject to the restrictions imposed in the *National Energy Board Part VI Regulations*. In addition, the Board authorizes licences and orders for imports of natural gas.

Regulation of Pipeline Traffic, Tolls, Tariffs, and Accounting Practices

The Board regulates the traffic, tolls and tariffs of pipeline companies under federal jurisdiction to ensure that the tolls are just and reasonable and that there is no unjust discrimination in tariffs or service.

Certificates of Public Convenience and Necessity for Pipelines and Power Lines

The Board grants certificates to construct and operate interprovincial and international oil, gas, and petroleum products pipelines, as well as international and designated interprovincial electric power lines. Before a certificate is issued, the Board is required to hold a public hearing.

Detailed Routing - Pipelines and Power Lines

Persons whose lands may be affected by the route of a pipeline or power line approved by the Board can present their views to the Board at a local public hearing. Their evidence is considered in the determination of the final detailed route of the line.

Pipeline and Power Line Orders

The Board approves without a public hearing minor pipeline facilities or minor additions to, or modifications of, existing pipeline systems. These approvals are restricted to pipelines not more than 40 kilometres long and to installations such as tanks, pumps, compressors, and meter stations. The Board may also authorize, without a public hearing, the construction and operation of international power lines not exceeding 50 kilovolts.

Pipeline Safety

The Board's *Onshore Pipeline Regulations* provide for the safe design, construction, and operation of pipelines under the Board's jurisdiction. To ensure high standards of pipeline construction and operation, the Board carries out inspection programs and conducts investigations of pipeline system performance.

Pipeline Utility Crossings

The Board monitors the construction and excavation activities of contractors, pursuant to the *Pipeline Crossing Regulations*, to ensure safety during construction of crossings of federally regulated pipelines.

Environmental Protection

The Board considers the environmental implications of any proposal to build and operate an oil or gas pipeline or international power line. Companies preparing an application to the Board are encouraged to anticipate and discuss with all levels of government, public interest groups, and affected landowners the environmental issues and concerns that the proposed project could create. Such early planning with respect to environmental matters produces a more complete application addressing the appropriate alternatives and taking into account the public's concerns.

To ensure the highest level of environmental protection, the Board welcomes interventions at hearings from local environmental and public interest groups, as well as concerned individuals. To encourage public participation, the Board often convenes the hearing in the area where construction impacts would occur.

After the issuance of a certificate or order, the Board audits the company's construction activities, and later, during the operation of the system, its routine maintenance and monitoring procedures. In that way, the Board can be satisfied that the company is continuing to protect the environment, and to ensure public health and safety.

Socio-Economic Impact

As part of its facilities approval process' the Board considers local and regional social and economic concerns. The Board

ensures that applicants take all reasonable steps to minimize project-induced negative impacts and to enhance project benefits accruing to local and regionally affected social groups. This can include a pre-project socio-economic impact assessment, a review of proposed socio-economic action plans, post-certificate monitoring of the success or failure of the action plans, and an assessment of actual project impacts.

Responsibilities Under the Energy Administration Act

The Board's responsibilities under the *Energy Administration Act* relate to the collection of oil export charges. Although the charges on crude oil and bulk petroleum product exports were reduced to zero in 1985, some activity remained in the areas of collection and write-off of outstanding assessments.

Responsibilities Under the Northern Pipeline Act

The Board's statutory responsibilities regarding the Canadian portion of the Alaska Natural Gas Transportation System relate mainly to the regulation of tolls and tariffs, the approval of pipe specifications, the granting of leave to open orders, and the regulation of the operation of the line. The Board also provided to the Northern Pipeline Agency finance and personnel services as well as technical advice. On 30 September 1989, Mr. K.W. Vollman was re-appointed the Designated Officer for the Northern Pipeline Agency.

Labour Canada Agreement

A memorandum of understanding has been entered into by the Board and Labour Canada, whereby certain Board inspectors have been appointed safety officers by the Minister of Labour and have assumed operational responsibilities for matters of occupational safety and health as covered in Part II (previously Part IV) of the *Canada Labour Code*. The agreement, which became effective on 23 February 1987, includes all pipelines under the Board's jurisdiction but excludes certain areas such as head offices and regional offices of the pipeline companies; these will continue to be the responsibility of Labour Canada inspectors.

Public Access and Participation

The Board is a court of record. With specific exceptions relating to the confidentiality of certain competitive pricing information, the Board's deliberations are conducted on the basis of information that is publicly filed and publicly available in the Board's library in Ottawa and at its office in Calgary. For major applications and inquiries, the Board holds public hearings at which applicants and interested persons have full rights of participation in the official language of their choice. To give parties an opportunity to discuss their concerns or questions, the Board provides advance notice of its hearings by requiring that notices be published in newspapers and allows time for parties to respond to requests for information.

In addition, the Board issues quarterly regulatory agenda on matters coming before the Board as well as information bulletins and press releases on a variety of matters pertaining to Board activities.

Implementation of Board Decisions

When the Board is prepared to grant a certificate for a pipeline or a power line or to issue a licence for the export of natural gas or electricity, the import of natural gas, or the long-term export of oil, it so reports to the Governor in Council through the Minister of Energy, Mines and Resources. If a certificate is approved by the Governor in Council, the certificate is then issued by the Board. In the case of long-term export or import applications, licences issued by the Board go into effect on approval by the Governor in Council. A decision of the Board to refuse an application is not subject to referral to the

Governor in Council, except in the case of energy exports to the United States where certain provisions of the Free Trade Agreement would apply as a consequence of the refusal. The Board's Reasons for Decision on applications are issued as public documents. The Board's decisions on tolls and tariffs are made without reference to the Governor in Council, as are the majority of the Board's day-to-day decisions.

Reviews and Appeals of Board Decisions

The Board may review, rescind, or change any of its orders or decisions, or rehear any application before deciding on it. It may also change a previously issued certificate or licence, but no such change is effective until approved by the Governor in Council.

Parties may apply to the Board requesting that a decision be reviewed. A decision may be appealed to the Federal Court of Appeal provided the appeal is based on a point of law or jurisdiction.

Awarding of Costs

Except in detailed route hearings, the Board does not have the power to award costs to participants in its proceedings.

In the case of detailed route hearings, the Board may establish the appropriate level of compensation to be paid to a landowner for costs associated with participation in the hearing.

Reasons for Decisions and Other Major Documents Issued in 1989

Reasons for Decisions

1. TRANSCANADA PIPELINES LIMITED - Application dated 5 February 1988 for certain orders respecting tolls under sections 50, 51 and 53 of the National Energy Board Act - (Hearing Order RH-1-88 Phase I) - November 1988 (issued January 1989)

2. TRANSCANADA PIPELINES LIMITED - Application dated 28 July 1989 pursuant to Parts III, IV and V of the Act - (Hearing Order GH-4-88) - January 1989

3. NORTH CANADIAN OILS LIMITED - Application pursuant to subsection 71(2) and 71(3) of the Act for Orders requiring Foothills Pipe Lines (Yukon) Ltd. to receive, transport and deliver gas offered by North Canadian Oils Limited - (Hearing Order MH-2-88) - May 1989

4. ALBERTA AND SOUTHERN GAS CO. LTD. - Application pursuant to Section 21 of the National Energy Board Act for a change, alteration or variation to natural gas export licence GL-99 - (Hearing Order GH-5-88) - May 1989

5. AMOCO CANADA PETROLEUM COMPANY LTD. - Application pursuant to Part VI of the National Energy Board Act for a licence to export gas - (Hearing Order GH-3-89) - May 1989

6. BRITISH COLUMBIA HYDRO AND POWER AUTHORITY - Application to vary the term of licence EL-162 pursuant to subsection 21(1) of the National Energy Board Act - (Hearing Order EH-1-89) - June 1989

7. CANTERRA ENERGY LTD., NORCEN ENERGY RESOURCES LIMITED, POCO PETROLEUMS LTD., VECTOR ENERGY INC., and WESTERN GAS MARKETING LIMITED - Applications pursuant to Part VI of the National Energy Board Act for licences to export natural gas and SHELL CANADA LIMITED - Application pursuant to Section 21 of the National Energy Board Act for a change, alteration or variation of natural gas export licence GL -100 - (Hearing Order GH-8-88) - June 1989

8. PROGAS LIMITED and WESTERN GAS MARKETING LIMITED - Applications pursuant to Section 21 of the National Energy Board Act for a change, alteration or variation to natural gas export licence GL-98 and GL-83 - (Hearing Order GH-9-88) - June 1989

9. FOOTHILLS PIPE LINES (ALTA.) LTD. - Application dated 11 April 1989 for an order, pursuant to section 58 of the Act, requesting an exemption from paragraph 30(1)(a), subsection 30(2), and Section 31 of the Act - (Hearing Order GHW-1-89) - June 1989

10. TRANSCANADA PIPELINES LIMITED - Application dated 5 February 1988 for certain orders respecting tolls under Sections 50, 51 and 53 of the National Energy Board Act - (Hearing Order RH-1-88 Phase II) - June 1989

11. HYDRO-QUÉBEC - Application for a licence to export electricity to the New York Power Authority, pursuant to Part VI of the National Energy Board Act - (Hearing Order EH-2-89) - July 1989

12. WESTCOAST ENERGY INC. - Application dated 14 April 1989 for new tolls effective 1 November 1989 - (Hearing Order RH-1-89) - September 1989

13. ESSO RESOURCES CANADA LIMITED, SHELL CANADA LIMITED and GULF CANADA RESOURCES LIMITED - Applications pursuant to Part VI of the National Energy Board Act for licences to export natural gas - (Hearing Order GH-10-88) - August 1989

14. TRANSCANADA PIPELINES LIMITED- Applications pursuant to Part III of the National Energy Board Act for a certificate to construct facilities and AMOCO CANADA PETROLEUM COMPANY LTD., CONSOLIDATED EDISON COMPANY OF NEW YORK, ICG UTILITIES (ONTARIO) LTD, INDECK GAS SUPPLY CORPORATION, WESTERN GAS MARKETING LIMITED, DIRECT ENERGY MARKETING LIMITED - Applications pursuant to Part VI of the National Energy Board Act for licences to export natural gas and PROGAS LIMITED, SHELL CANADA LIMITED - Applications pursuant to Part I of the National Energy Board Act for a change, alteration or variation of natural gas export licences - (Hearing Order GH-1-89 Volume I) - December 1989

Other Major Documents

1. 1988 Annual Report - 31 March 1989
2. Exports of Petroleum Products 1988 - April 1989
3. Exports of Crude Oil 1988 - June 1989
4. Annual Report Pursuant to Access to Information Act and Privacy Act - 23 June 1989
5. Natural Gas Market Assessment - October 1989
6. National Energy Board - An Introduction - November 1989
7. Draft Guidelines for Early Notification

Copies of the Board's Reasons for Decisions and other reports are available on request from:

Regulatory Support Office
National Energy Board
473 Albert Street
Ottawa, Canada
K1A 0E5

(613) 998-7204

Companies Under National Energy Board Jurisdiction

The following is a list of pipeline companies[1] which own and/or operate interprovincial or international pipelines under the Board's jurisdiction, companies that have been granted licences to export natural gas, and electric utilities that have been granted electricity export licences by the Board. References to the following companies in this report use the abbreviations indicated in brackets.

Pipelines

Group 1 Gas

Alberta Natural Gas Company Ltd. (Alberta Natural Gas)
Foothills Pipe Lines Ltd. (Foothills)
Gazoduc Trans Québec & Maritimes Inc. (TQM)
TransCanada PipeLines Limited (TransCanada)
Westcoast Energy Inc. (Westcoast)

Group 1 Oil and Products

Cochin Pipe Lines Ltd. (Cochin)
Interprovincial Pipe Line Company,
a division of Interhome Energy Inc. (Interprovincial)[2]
Interprovincial Pipe Line (NW) Ltd., (IPL(NW))
Trans Mountain Pipe Line Company Ltd. (Trans Mountain)
Trans-Northern Pipelines Inc. (Trans-Northern)

1 The pipeline companies have been divided into two groups. Group 1 consists of the ten major pipeline companies which are audited by the Board on a regular basis and whose operating results are continuously monitored by the Board. The 39 companies under the Board's jurisdiction that are not included in Group 1 have been designated as Group 2 companies.

2 On 5 May 1988, Interprovincial Pipe Line Limited changed its corporate name to Interhome Energy Inc. However, the pipeline operations are being conducted under the business name Interprovincial Pipe Line Company, a division of Interhome Energy Inc.

Group 2 Gas

Amoco Canada Petroleum Company Ltd. (Amoco) (inactive)
Amoco Canada Resources Limited (Amoco Canada) (inactive)
A.P.R. Pipeline Company Ltd. (A.P.R. Pipeline)
Bonanza Oil and Gas Ltd. (Bonanza)
Canadian Hunter Exploration Ltd. (Canadian Hunter)
Canadian-Montana Pipe Line Company (Canadian-Montana)
Champion Pipe Line Corporation Limited (Champion)
Consumers' Gas (Canada) Limited (Consumers' Gas)
ICG Transmission Holdings Ltd. (ICG)
Many Islands Pipe Lines (Canada) Limited (Many Islands)
Mid-Continent Pipelines Limited (Mid-Continent)
Minell Pipeline Ltd. (Minell)
Murphy Oil Company Ltd. (Murphy Oil) (inactive)
Newex Resources Ltd. (Newex)
Niagara Gas Transmission Limited (Niagara Gas)
Novacorp International Pipelines Ltd. (Novacorp)
Peace River Transmission Company Limited (Peace River)
Saskatchewan Power Corporation (Saskatchewan Power)
Shell Canada Products Limited (Shell Canada)
St. Clair Pipelines Ltd. (St. Clair Pipelines)
Union Gas Limited (Union Gas)

Group 2 Oil and Products

Aurora Pipe Line Company (Aurora)
Dome Kerrobert Pipeline Ltd. and Pan Canadian Kerrobert Ltd. (Dome Kerrobert and Pan Canadian)
Dome NGL Pipeline Ltd. (Dome NGL)
Dome NGL Pipeline Ltd. and Amoco Canada Petroleum Company Ltd. (Dome NGL and Amoco)
Esso Resources Canada Limited (Esso)
Manito Pipelines Ltd. (Manito) (includes Bodo Pipeline System (Joint Venture))
Montreal Pipe Line Limited (Montreal)
Mont Resources Limited (Mont Resources)
Murphy Oil Company Ltd. (Murphy Oil)
Northwest Transmission Company Limited (Northwest Transmission)
Petroleum Transmission Company (Petroleum Transmission)
Polysar Hydrocarbons Limited (Polysar)
Pouce Coupé Pipeline Ltd. (Pouce Coupé)
Sun Pipe Line Company (Sun)
Wascana Pipe Line Ltd. (Wascana)
Westspur Pipe Line Company (1985) Inc. (Westspur)
Windsor Storage Facility Joint Venture (Windsor Storage)
Yukon Pipelines Limited (Yukon)

Gas Export Licence Holders

Alberta and Southern Gas Co. Ltd. (Alberta and Southern)
Alberta Northeast Gas Ltd. & AEC Oil and Gas Company (ANE & AEC)[1]
Alberta Northeast Gas Ltd. & ATCOR Ltd. (ANE & ATCOR)[1]
Alberta Northeast Gas Ltd. & ProGas Limited (ANE & ProGas)[1]
Alberta Northeast Gas Ltd. & TransCanada PipeLines Limited (ANE & TransCanada)[1]
Amoco Canada Petroleum Company Ltd. (Amoco)
Amoco Canada Resources Limited (Amoco Resources)
BC Gas Inc. (BC Gas)[2]
Canadian Hunter Exploration Ltd. (Canadian Hunter)
Canadian-Montana Pipe Line Company (Canadian-Montana)
Canterra Energy Ltd. (Canterra)
Consolidated Natural Gas Limited (Consolidated)
Esso Resources Canada Limited (Esso)
ICG Transmission Holdings Ltd. (ICG Transmission)
KannGaz Producers Ltd. (KannGaz)
Many Islands Natural Gas (Canada) Limited (Many Islands)[3]
Niagara Gas Transmission Limited (Niagara Gas)
Norcen Energy Resources Limited (Norcen)
Pan-Alberta Gas Ltd. (Pan-Alberta)
Poco Petroleums Ltd. (Poco)
ProGas Limited (ProGas)
Shell Canada Limited (Shell Canada)
TransCanada PipeLines Limited (TransCanada)
Union Gas Limited (Union Gas)
Westcoast Energy Inc. (Westcoast)

1 Joint licence holders
2 Export for Re-import
3 Re-export of import

Electric Power Licencees and Certificate Holders[1]

Boise Cascade Canada Ltd. (Boise Cascade)
British Columbia Hydro and Power Authority (B.C. Hydro)
Canadian Niagara Power Company Limited (Canadian Niagara)
The Canadian Transit Company (Canadian Transit)
Cedars Rapids Transmission Company, Limited (Cedars Rapids)
Cominco Ltd. (Cominco)
Cornwall Electric (Cornwall Electric)[1]
The Detroit and Windsor Subway Company (Detroit and Windsor)
Fraser Inc. (Fraser)
Hydro-Québec (Hydro-Québec)
Maine and New Brunswick Electrical Power Company, Limited (Maine and New Brunswick)
The Manitoba Hydro-Electric Board (Manitoba Hydro)
The New Brunswick Electric Power Commission (New Brunswick Power)
Ontario Hydro (Ontario Hydro)
Saskatchewan Power Corporation (Sask Power)
West Kootenay Power and Light Company, Limited (West Kootenay)

1 All licencees except Cornwall Electric export over their own facilities for which Board certificates have been issued. Cornwall Electric exports its power over the facilities of Cedars Rapids.

Metric Conversion Table

The National Energy Board uses the International System of Units (SI). The energy units most commonly referred to in this report are the gigajoule (GJ) and the petajoule (PJ). A 30-litre gasoline fill-up contains about one gigajoule of energy. A petajoule is one million gigajoules. On average, a city the size of Toronto uses a petajoule of energy for all uses (heat, light, transportation, etc.) about every 15 hours.

The following conversion table is provided for the convenience of readers who may be more familiar with the Imperial System.

Approximate Conversion Factor

1 metre (m)	=	3.28 feet
1 kilometre (km)	=	0.62 mile
1 millimetre (mm)	=	0.039 inch
1 cubic metre (m^3) of oil	=	6.3 barrels
1 cubic metre (m^3) of natural gas	=	35.3 cubic feet
1 litre (L)	=	0.22 Imperial gallon
1 kilogram (kg)	=	2.20 pounds
1 gigajoule (GJ)	=	0.95 MMBtu, or 0.95 thousand cubic feet (Mcf) of natural gas at 1000 Btu/cf
1 petajoule (PJ)	=	0.95 billion cubic feet of natural gas, or 165 000 barrels of oil, or 0.28 terawatt hours of electricity

Abbreviations

gigajoule (GJ)	=	10^9J
terajoule (TJ)	=	10^{12}J
petajoule (PJ)	=	10^{15}J
exajoule (EJ)	=	10^{18}J
kilowatt (KW)	=	10^3 watts
megawatt (MW)	=	10^3 KW
megawatt hour (MW.h)	=	10^3 KW.h
gigawatt hour (GW.h)	=	10^6 KW.h
terawatt hour (TW.h)	=	10^9 KW.h

Appendices

Appendices

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5. Licences and Long-Term Orders to Import Natural Gas as at 31 December 1989
6. Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1989
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Energy Overview

1. Canadian Energy Consumption(a) (Petajoules)

	1985	1986	1987	1988	1989(e)
Petroleum (b)	3134.6	3133.5	3202.4	3365.7	3513.4
Natural Gas (c)	2147.6	2132.0	2138.5	2368.4	2536.5
Hydroelectricity (d)	1084.5	1110.7	1130.5	1096.4	1027.8
Nuclear (d) (f)	714.2	841.6	905.3	958.9	928.3
Coal	1122.1	1040.0	1117.7	1200.3	1150.0
Renewable and Other	514.5	543.9	554.2	553.5	573.2
TOTAL FOR CANADA	8717.5	8801.7	9048.6	9543.2	9729.2

a - Includes non-energy use, own use, and conversions and includes fuel for electricity export.
b - Includes LPGs.
c - Excludes reprocessing shrinkage and includes ethane, reprocessing fuel and fuel used for bitumen production.
d - Hydro and nuclear are converted at 3.6 PJ/TW.h. and 12.1 PJ/TW.h. respectively.

If the energy were converted using the heat content of 10.5 petajoules per terawatt hour, this assumes that the amount of primary energy associated with hydro and nuclear electricity is the amount which would be required if fossil fuels were used. The amount would be:

	1984	1985	1986	1987	1988(e)
Hydroelectricity and Nuclear	3782.9	3970.0	4082.9	4029.9	3803.4

e - Estimate.
f - Includes energy used to produce steam.

Energy Overview

2. Crude Oil and Equivalent Supply and Disposition (Thousands of Cubic Metres per Day)

	1985	1986	1987	1988	1989(e)
Supply					
Canadian Production (a)	248.8	249.0	259.6	272.6	263.0
Imports (b)	43.4	56.6	64.7	71.7	76.9
Total Supply (d)	292.2	305.6	324.3	344.3	339.9
Disposition					
Domestic (b)	221.1	216.7	226.5	238.3	242.2
Exports (c)	75.8	93.6	99.6	112.8	102.9
Total Disposition (d)	296.9	310.3	326.1	351.1	345.1

a - Source: NEB.
b - Source: NEB Form 153 - Refinery Receipts.
c - Source: NEB Form 306 - Crude Oil Exports.
d - Total Supply does not equal total disposition due to inventory changes, etc.
e - Estimate.

Energy Overview

3. Natural Gas Supply and Disposition (Billions of Cubic Metres at 101.325 KPa and 15 Celsius)

	1985	1986	1987	1988	1989(e)
Net Sales in Canada	50.2	48.8	47.8	52.7	57.2
Other Uses in Canada (a)	1.0	2.5	2.1	2.9	2.6
Imports	0.0	-0.3	-0.1	-0.6	-1.2
Exports	26.2	21.1	28.0	35.9	37.9
Total Deliveries (b)	77.4	72.1	77.8	91.0	96.5
Marketable Gas Production (b)	81.5	74.9	80.9	93.5	97.5

a - Includes pipeline fuel and losses and other deliveries, less inventory changes.
b - Total deliveries includes synthetic natural gas but excludes reprocessing shrinkage and reprocessing fuel which are included in marketable gas production.
e - Estimate.

Energy Overview

4. Electricity Generation and Disposition (Terawatt Hours)

	1985	1986	1987	1988	1989
Total Generation	446.4	457.2	483.2	490.6	480.0 (p)
Imports (a)	0.2	0.2	0.5	2.8	8.7
Total Supply	446.6	457.4	483.7	493.4	488.7 (p)
Demand	405.1	422.1	438.3	463.7	470.2 (p)
Exports (a)	41.5	35.3	45.4	29.7	18.5

a - Excludes exchanges between Canada and the United States.
p - Preliminary.

Oil

1. Certificates Issued During 1989 Approving New Oil Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

No Certificates were issued in 1989.

Oil

2. Orders Issued During 1989 Approving New Oil Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Pouce Coupé Pipe Line Ltd.	XO-1-89	89-04-05	26.1-km Pipeline, British Columbia-Alberta	2 845 000
Trans Mountain Pipe Line Ltd.	XO-2-89	89-07-20	Tank 17 Replacement, Alberta	2 800 000

Oil

3. Orders Issued During 1989 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Cochin Pipe Line Ltd.	XOM-9-89	89-06-23	Windsor Terminal Modifications	86 000
	XOM-10-89	89-06-23	Windsor Terminal Modifications	10 000
	XOM-15-89	89-09-14	Scraper Trap Modifications	110 000
	XOM-18-89	89-11-03	Windsor Storage Terminal Cavern I-4 Enlargement	260 000
Interprovincial Pipe Line Company, a division of Interhome Energy Inc.	XOM-3-89	89-03-06	Pump Station Modifications	1 000 000
	XOM-11-89	89-08-24	PCB Contaminated Capacitors, Tank Roof Seal and Emergency Oil Spill Equipment Replacements	6 400 000
	XOM-14-89	89-10-12	Pumping Station, Tanks, Meter Stations, Communications, Buildings and Equipment Upgrade and Replacement	61 600 000

Oil

3. (cont'd) Orders Issued During 1989 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Interprovincial Pipe Line (NW) Ltd.	XOM-1-89	89-02-02	Pipeline Section Replacements	2 000 000
	XOM-8-89	89-05-08	Pump Station Modification	289 300
	XOM-13-89	89-10-12	Pump Station Modifications and Meter Installation	1 500 000
Petroleum Transmission Company	XOM-17-89	89-11-02	Integrity Program, Material Balance and Pump Upgrade	2 160 785
Trans Mountain Pipe Line Company Ltd.	XOM-5-89	89-05-19	Burnaby Tank Dyke Reconstruction	5 900 000
	XOM-6-89	89-05-08	Mainline Pipe, Vehicles and Work Equipment Replacements	264 000
	XOM-16-89	89-10-05	Station Equipment Modifications, Aircraft	2 450 000
	XOM-19-89	89-12-06	Upgrades and Modifications	10 455 000
Trans-Northern Pipelines Inc.	XOM-2-89	89-03-02	Scraper Trap, Computer Systems, Pump Stations, Spill Containment and Buildings Upgrade and Modifications	2 073 000
	XOM-4-89	89-05-19	Pipe Relocation	160 000
	XOM-7-89	89-05-08	Pipe Relocation	108 000
	XOM-12-89	89-07-20	Pipe Relocation	87 000

Oil

4. Exports of Petroleum Products - 1989 (Cubic Metres)

Month	Motor Gasoline	Middle Distillate	Heavy Fuel Oil	Aviation Turbine Fuel	Partially Processed Oil	Total (a)
January	165 042	455 829	89 558	177 448	30 944	918 821
February	208 983	398 249	36 433	164 345	112 713	920 723
March	327 650	446 654	58 195	139 753	39 726	1 011 978
April	281 745	297 869	67 750	174 524	94 820	916 708
May	329 843	300 660	63 720	164 508	18 753	877 484
June	238 575	171 439	72 798	194 038	111 428	788 278
July	177 075	370 857	73 502	133 177	121 595	876 206
August	291 456	413 762	105 043	213 371	79 859	1 103 491
September	211 733	358 276	67 024	117 314	37 689	792 036
October	250 000	325 405	66 992	100 000	60 000	802 397
November	220 000	420 000	70 000	191 522	65 000	966 522
December	180 000	455 000	63 985	200 000	75 473	974 458
Total (m^3)	**2 882 000**	**4 414 000**	**835 000**	**1 970 000**	**848 000**	**10 949 000**
m^3/d	**7 896**	**12 093**	**2 288**	**5 397**	**2 323**	**30 000**

a - Excludes propane, butane, lubricants, greases, asphalt, petrochemicals etc.

Oil

5. Exports of Canadian Crude and Equivalent - 1988 and 1989 (Cubic Metres)

	1988		1989	
	Total	Daily Average	Total	Daily Average
Amoco Production Company	3 851 987	10 525	4 068 376	11 146
Ashland Oil Inc.	1 702 215	4 651	1 439 424	3 944
BP Oil		-	102 216	280
Cenex	1 125 721	3 076	1 218 951	3 340
Chinese Petroleum Corporation	273 409	747	118 050	323
Clark Oil & Refining Corporation	3 851 088	10 522	2 912 773	7 980
Conoco Inc.	1 583 220	4 326	2 095 581	5 741
Crystal Refining	42 936	117	29 168	80
Exxon Company, U.S.A.	2 034 390	5 558	1 202 665	3 295
Frontier Oil and Refining Co.	218 115	596	82 460	226
Koch Refining Company	9 618 497	26 280	8 957 267	24 540
Laketon Refining Corp.	407 513	1 113	389 926	1 068
Marathon Petroleum Company	744 830	2 035	512 466	1 404
Mobil Oil Corporation	3 642 397	9 952	3 922 347	10 746
Montana Refining Company	271 988	743	247 532	678
Murphy Oil U.S.A. Inc.	723 215	1 976	977 323	2 678
Pecten Trading Company	81 226	222	26 927	74
Shell International Trading	34 517	94		-
Shell Oil Company	399 119	1 091	743 729	2 038
Sohio Supply Company	98 845	270		-
Sun Refining and Marketing Co.	2 685 132	7 336	2 594 849	7 109
Texaco U.S.A.	183 103	500	109 809	301
Tosco Corporation		-	18 305	50
Total Petroleum, Inc.	132 532	362	231 656	635
Union Oil Company of California	4 155 280	11 353	2 125 446	5 823
United Refining Company	3 193 570	8 726	3 151 538	8 634
U.S. Oil & Refining Co.	221 948	606	226 563	621
Others		-	42 343	116
TOTAL	**41 276 789**	**112 778**	**37 547 690**	**102 870**

Oil

6. Exports of Canadian Crude and Equivalent (Cubic metres per day)

	1985	1986	1987	1988	1989
Light Crude Oil and Equivalent	33 416	41 281	44 213	50 214	47 136
Heavy Crude Oil	41 901	52 301	55 357	62 565	55 734
Total	**75 317**	**93 582**	**99 570**	**112 778**	**102 870**

Gas

1. Certificates Issued During 1989 Approving New Gas Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

No Certificates were Issued in 1989.

Gas

2. Orders Issued During 1989 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Bonanza Oil and Gas Ltd.	XG-11-89	89-08-24	5.4-km, 114.3-mm Outside Diameter Pipe, Saskatchewan - Alberta	201 215
Foothills Pipe Lines (Alta.) Ltd.	XG-7-89	89-06-29	Decompression/Recompression Facilities Installation, Alberta	34 500 000
ICG Transmission Holdings Ltd.	XG-4-89	89-11-30	Two, Approx. 800-kW Compressor Stations, Manitoba and Ontario	7 000 000
TransCanada PipeLines Limited	XG-1-89	89-05-01	21.1-km, 1219-mm Outside Diameter Pipeline, Ontario	31 520 000
	XG-2-89	89-05-01	5.1-km, 1219-mm Outside Diameter Pipeline, Ontario	8 087 000
	XG-3-89	89-08-10	Oak Bluff Meter Station, Ontario	1 453 000
	XG-6-89	89-06-08	Kirkwall Tie-in, Nanticoke Meter Station and Piping Modifications at Hamilton Gate Meter Station, Ontario	2 128 000
	XG-8-89	89-06-19	1.6-km, 1219-mm Loop, Ontario	6 688 000
Westcoast Energy Inc.	XG-5-89	89-06-08	Aitken Creek Pipeline Loop, British Columbia	8 110 000
	XG-9-89	89-07-27	Cyprus Creek Meter Station, British Columbia	809 000
	XG-10-89	89-08-17	Pipe and Commotion Pipelines Construction, British Columbia	3 100 000

Gas

3. Orders Issued During 1989 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Canadian Hunter Exploration Ltd.	XGM-8-89	89-06-01	2.3-km, 406.4-mm Outside Diameter Pipeline	468 500
Consumers' Gas (Canada) Limited	XGM-19-89	89-10-24	Tie-in	375
Foothills Pipe Lines Ltd.	XGM-3-89	89-03-23	Valves, Warehouse Additions, Equipment Upgrade	1 808 500
	XGM-5-89	89-03-29	1.4-km Pipeline Upgrade	1 647 700
	XGM-23-89	89-11-16	Three Aero Assemblies and Meter Run	2 050 000
Gazoduc Trans Québec & Maritimes Inc.	XGM-17-89	89-09-29	Sales Tap	11 200
	XGM-20-89	89-10-26	General Office Equipment	540 000
Many Islands Pipe Line (Canada) Limited	XGM-12-89	89-08-12	Tie-in, Isolating Valve and 4.5-m, 88.9-mm Outside Diameter Pipe	6 100
	XGM-18-89	89-10-16	Three, 168.3-mm Outside Diameter Hot Taps	62 000
Niagara Gas Transmission Limited	XGM-14-89	89-08-16	NPS 12 Valve and Pipe Replacement	34 175
St. Clair Pipelines Ltd.	XGM-24-89	89-11-14	175-m Pipeline Extension	67 000
TransCanada PipeLines Limited	XGM-2-89	89-01-18	Telemetry Installation	143 000
	XGM-4-89	89-03-23	Pipe Replacements	1 467 000
	XGM-6-89	89-04-20	Pipe, Ice Detection System Compressor and Power Turbine Replacement	4 858 000

Gas

3. (cont'd) Orders Issued During 1989 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
	XGM-9-89	89-06-15	Compressor Modifications and PCB Storage Buildings	2 470 000
	XGM-10-89	89-07-27	Health Equipment, Meter Station Buildings and Mainline Valve Replacement	604 000
	XGM-13-89	-08-31	Boiler Replacement	101 000
	XGM-15-89	89-10-05	A Gas Chromatograph	50 000
	XGM-22-89	89-11-16	Pipe Replacements, Compression and Metering Upgrade	24 849 000
	XGM-25-89	89-11-30	Sales Tap	146 000
	XGM-26-89	89-12-06	Meter Station Upgrade	210 500
Westcoast Energy Inc.	XGM-1-89	89-01-18	Plants, Warehouses Office Services, Mobile Equipment Replacements and Modifications	728 000
	XGM-7-89	89-05-19	Piping, Gas Flow Control Contactor, Aviation Equipment Replacement	7 909 000
	XGM-11-89	89-07-27	Valve, Control Systems, Overhead Crane, Boilers, Trucks	1 497 000
	XGM-16-89	89-10-05	Monitoring Equipment, Condensate Loop Extension, Float Engines, Instrumentation Upgrade	11 670 000
	XGM-21-89	89-11-23	Emergency Shut Down System, Discharge Gas Cooler, Fuel Control System, SCADA and MAOP Upgrades	30 980 000

Gas

4. Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
Alberta and Southern Gas Co. Ltd.	GL-99	Kingsgate, BC.	1986-12-18	1987-10-31	31 897.2	9 340.9	77 626.5
			1987-11-01	1994-10-31	31 897.2	10 580.4	
	GL-111	Kingsgate, BC.	1994-11-01	2005-10-31	31 900.0	10 580.5	116 385.0
Alberta Northeast Gas Ltd. and AEC Oil and Gas Company	GL-105	Iroquois, Ont.	1988-11-01	2003-10-31	495.7	180.9	2 714.0
Alberta Northeast Gas Ltd. and ATCOR Ltd.	GL-104	Iroquois, Ont.	1988-11-01	2003-10-31	991.5	361.9	5 428.0
Alberta Northeast Gas Ltd. and ProGas Limited	GL-103	Iroquois, Ont.	1988-11-01	2003-10-31	1 869.6	682.4	10 236.0
Alberta Northeast Gas Ltd. and TransCanada PipeLines Limited	GL-102	Iroquois, Ont.	1988-11-01	2003-10-31	7 506.9	2 740.0	42 646.0
		Niagara Falls, Ont.	1988-11-01	2003-10-31	283.3	103.4	
Amoco Canada Petroleum Company Ltd.	GL-112	Huntingdon, BC.	1989-07-24	1989-10-31	704.0	70.4	3 856.0
			1989-11-01	2004-10-31	704.0	257.0	
Amoco Canada Resources Limited	GL-108	Emerson, Man.	1989-03-16	1989-10-31	422.5	96.8	1 504.0
			1989-11-01	2001-10-31	422.5	154.0	
BC Gas Inc.	GL-123(a)	Huntingdon, BC.	1989-11-09	1992-04-30	1 703.0	61.3	184.0
Canadian Hunter Exploration Ltd.	GL-107	Niagara Falls & Iroquois, Ont.	1990-11-01	2010-10-31	845.0	254.0	3 381.0
Canadian-Montana Pipe Line Company	GL-25	Aden/Cardston, Alta, Emerson, Man. & Niagara Falls, Ont.	1968-11-01	1969-10-31	339.9	103.4	4 890.8
			1969-11-01	1991-10-31	679.9	206.8	
			1991-11-01	1993-10-31	390.9	119.0	
	GL-72	Aden, Alta.	1988-01-01	1988-10-31	1 133.1	236.1	1 085.7
			1988-11-01	1990-10-31	1 416.4	283.3	
			1990-11-01	1991-10-31	1 416.4	188.7	
			1991-11-01	1992-10-31	1 416.4	94.3	
	GO-3-79	Reagan Field, Alta.	1979-05-01	1993-12-31	30.0	10.3	105.0
Canterra Energy Ltd.	GL-113	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 099.1
			1989-11-01	2003-10-31	424.9	155.1	
	GL-114	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 246.4
			1989-11-01	2004-10-31	424.9	155.1	
Esso Resources Canada Limited	GL-82	Niagara Falls, Ont.	1984-02-05	1984-10-31	2 125.0	340.0	4 653.7
			1984-11-01	1988-10-31	2 125.0	775.6	
			1988-11-01	1989-10-31	2 125.0	745.9	
			1989-11-01	1990-10-31	850.0	310.2	
			1990-11-01	1991-10-31	425.0	155.1	

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
ICG Transmission Holdings Ltd.	GL-28	Sprague, Man.	1970-11-01	1995-10-31	80.3	9.5	229.0
	GL-29	Fort Frances, Ont.	1970-11-01	1995-10-31	915.6	218.5	5 462.2
	GL-30(b)	Sprague, Man.	1970-11-01	1995-10-31	1 321.8	344.0	8 498.1
KannGaz Producers Ltd.	GL-77	Niagara Falls, Ont.	1987-11-01	1996-10-31	3 540.0	1 292.1	13 567.0
			1996-11-01	1997-10-31	2 655.0	969.1	
			1997-11-01	1998-10-31	1 770.0	646.0	
			1998-11-01	1999-10-31	885.0	323.0	
Many Islands Natural Gas (Canada) Limited	GL-44(c)	Emerson, Man.	1972-03-15	1992-10-31	4 249.2	1 274.8	18 951.3
Niagara Gas Transmission Limited	GL-78	Cornwall, Ont.	1987-11-01	1990-10-31	1 200.0	275.0	1 099.7
			1990-11-01	1991-10-31	799.2	183.1	
			1991-11-01	1992-10-31	399.2	91.6	
Norcen Energy Resources Limited	GL-115	Emerson, Man.	1989-08-24	1989-10-31	396.6	27.4	1 841.0
			1989-11-01	2001-10-31	396.6	144.5	
	GL-116	Emerson, Man.	1989-08-24	1989-10-31	184.1	12.7	1 034.0
			1989-11-01	1994-10-31	184.1	67.2	
			1994-11-01	2001-10-31	283.3	104.8	
Pan-Alberta Gas Ltd.	GL-95	Emerson, Man. & Niagara Falls, Ont. combined maximum	1987-11-01	1996-10-31	4 332.5	1 581.4	16 604.7
			1996-11-01	1997-10-31	3 249.4	1 186.0	
			1997-11-01	1998-10-31	2 166.2	790.7	
			1998-11-01	1999-10-31	1 083.1	395.4	
		Maximum permitted at Niagara Falls, Ont. as part of combined Emerson/Niagara Falls volumes	1987-11-19	1996-10-31	1 442.7	526.6	
			1996-11-01	1997-10-31	1 082.1	394.9	
			1997-11-01	1998-10-31	721.3	263.3	
			1998-11-01	1999-10-31	360.7	131.7	
	GL-97	Monchy, Sask.	1984-12-20	1985-10-31	24 928.5	7 582.8	75 296.7
			1985-11-01	2001-10-31	24 928.5	8 294.4	
	GL-106	Kingsgate, BC.	1988-11-01	2012-10-31	7 478.6	2 488.3	59 719.2
Poco Petroleums Ltd.	GL-117	Emerson, Man.	1989-08-24	1989-10-31	708.2	48.9	2 843.5
			1989-11-01	2000-10-31	708.2	258.5	
	GL-118	Emerson, Man.	1989-08-24	1989-10-31	708.2	48.9	2 715.3
			1989-11-01	2000-10-31	708.2	258.5	
ProGas Limited	GL-80	Niagara Falls, Ont.	1987-11-01	1996-10-31	1 420.0	518.3	5 442.1
			1996-11-01	1997-10-31	1 065.0	388.7	
			1997-11-01	1998-10-31	710.0	259.1	
			1998-11-01	1999-10-31	355.0	129.6	

Gas

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
ProGas Limited (Cont'd)	GL-81	Emerson, Man.	1987-11-01	1990-10-31	5 270.0	1 923.5	15 026.7
			1990-11-01	1991-04-30	5 270.0	953.9	
			1991-05-01	1991-10-31	4 561.8	839.4	
			1991-11-01	1996-10-31	4 561.8	1 665.0	
			1996-11-01	1997-10-31	3 244.3	1 184.1	
			1997-11-01	1998-10-31	1 926.8	703.2	
			1998-11-01	1999-10-31	609.3	222.4	
	GL-98	Emerson, Man. & Monchy, Sask. combined maximum	1986-08-13	1986-10-31	9 440.9	2 583.2	35 492.8
			1986-11-01	1987-10-31	7 552.7	2 480.0	
			1987-11-01	2000-10-31	9 440.9	3 100.0	
		Maximum permitted at Monchy, Sask. as part of combined Emerson/Monchy volumes	1986-08-13	1986-10-31	6 797.4	2 480.0	17 746.4
			1986-11-01	1987-10-31	3 776.3	1 240.0	
			1987-11-01	2000-10-31	4 720.4	1 550.0	
	GL-101	Niagara Falls, Ont.	1989-05-01	1989-10-31	1 420.0	260.6	10 340.0
			1989-11-01	2009-10-31	1 420.0	517.0	
	GL-109	Niagara Falls & Iroquois, Ont.	1991-05-01	1991-10-31	708.2	130.3	5 170.0
			1991-11-01	2011-10-31	708.2	258.5	
Shell Canada Limited	GL-100	Highwater, Que.	1987-11-01	1998-10-31	1 110.0	300.0	5 900.0
			1998-11-01	1999-03-31	1 110.0	167.6	
		Niagara Falls, Ont.	1987-11-01	1998-10-31	1 390.0	400.0	
			1998-11-01	1999-03-31	1 390.0	209.9	
	GL-119	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 234.0
			1989-11-01	2003-10-31	424.9	155.1	
	GL-120	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 250.0
			1989-11-01	2004-10-31	424.9	155.1	
TransCanada PipeLines Limited	GL-20	Emerson, Man.	1967-11-01	1991-10-31	2 662.8	909.3	21 670.8
	GL-21(d)	Emerson, Man.	1968-11-05	1991-10-31	N/S	7 019.1	169 967.0
	GL-37	Emerson, Man.	1970-11-01	1990-10-31	5 546.6	2 030.1	40 601.0
	GL-38	Emerson, Man.	1970-11-01	1990-10-31	1 416.4	518.4	10 368.0
	GL-39	Emerson, Man.	1970-11-01	1990-10-31	204.0	74.6	1 493.0
	GL-42(d)	Emerson, Man.	1971-04-15	1971-10-31	N/S	232.8	60 316.5
			1971-11-01	1994-10-31	N/S	2 612.3	
	GL-43	Emerson, Man.	1971-11-01	1991-10-31	N/S	481.6	9 631.5

Gas

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
TransCanada PipeLines Limited (Cont'd)	GL-83	Niagara Falls, Ont.	1984-11-01	1986-10-31	1 133.1	414.0	16 371.0
			1986-11-01	2002-10-31	2 620.3	959.0	
			2002-11-01	2003-01-15	2 620.3	199.1	
	GL-84	Niagara Falls, Ont.	1987-11-01	1988-10-31	142.0	51.8	2 378.0
			1988-11-01	1997-10-31	708.0	258.4	
	GL-86	Emerson, Man.	1987-11-01	1990-10-31	2 832.8	1 034.0	10 886.4
			1990-11-01	1991-10-31	2 832.8	1 036.8	
			1991-11-01	1994-10-31	2 832.8	1 034.0	
			1994-11-01	1995-10-31	2 832.8	1 036.8	
			1995-11-01	1996-10-31	2 832.8	1 034.0	
			1996-11-01	1997-10-31	2 188.7	798.9	
			1997-11-01	1998-10-31	1 416.4	517.0	
			1998-11-01	1999-10-31	708.2	259.2	
	GL-87	Emerson, Man.	1987-11-01	1990-10-31	2 832.8	1 034.0	10 886.4
			1990-11-01	1991-10-31	2 832.8	1 036.8	
			1991-11-01	1994-10-31	2 832.8	1 034.0	
			1994-11-01	1995-10-31	2 832.8	1 036.8	
			1995-11-01	1996-10-31	2 832.8	1 034.0	
			1996-11-01	1997-10-31	2 188.7	798.9	
			1997-11-01	1998-10-31	1 416.4	517.0	
			1998-11-01	1999-10-31	708.2	259.2	
	GL-89	Emerson, Man.	1984-11-01	1985-10-31	6 317.1	524.1	12 960.8
			1985-11-01	1986-10-31	6 317.1	1 957.3	
			1986-11-01	1990-10-31	6 317.1	2 096.3	
			1990-11-01	1991-10-31	4 207.2	1 396.1	
			1991-11-01	1992-10-31	2 103.6	698.1	
	GL-90	Niagara Falls, Ont.	1987-11-01	1988-10-31	1 416.4	518.4	5 443.2
			1988-11-01	1991-10-31	1 416.4	517.0	
			1991-11-01	1992-10-31	1 416.4	518.4	
			1992-11-01	1995-10-31	1 416.4	517.0	
			1995-11-01	1996-10-31	1 416.4	518.4	
			1996-11-01	1997-10-31	1 091.3	398.3	
			1997-11-01	1998-10-31	708.2	258.5	
			1998-11-01	1999-10-31	354.1	129.2	
	GL-110	Niagara Falls & Iroquois, Ont.	1991-05-01	1991-10-31	708.2	130.3	5 443.2
			1991-11-01	2012-10-31	708.2	258.5	
	GL-121	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 326.5
			1989-11-01	2003-10-31	424.9	155.1	
	GL-122	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 326.5
			1989-11-01	2004-10-31	424.9	155.1	

Gas

4. (cont'd)Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
Union Gas Limited	GL-92	Windsor, Ont.	1985-11-01	1990-10-31	1 100.0	284.0	1 703.7
			1990-11-01	1991-10-31	732.6	189.1	
			1991-11-01	1992-10-31	366.3	94.6	
Westcoast Energy Inc.	GL-93	Huntingdon, BC.	1989-11-01	1992-10-31	8 496.3	3 101.9	13 958.6
			1992-11-01	1993-10-31	6 373.3	2 326.4	
			1993-11-01	1994-10-31	4 249.1	1 550.9	
			1994-11-01	1995-10-31	2 124.6	775.5	
	GL-94	Huntingdon/Kingsgate, BC. & Monchy, Sask. combined maximum	1989-11-01	1990-10-31	13 731.0	4 637.1	9 269.5
			1990-11-01	1991-10-31	9 144.8	3 088.3	
			1991-11-01	1992-10-31	4 572.4	1 544.1	
		Maximum permitted at Kingsgate, BC. as part of combined Huntingdon/ Kingsgate/Monchy volumes	1989-11-01	1990-10-31	2 832.8	1 034.0	
			1990-11-01	1991-10-31	2 832.8	1 034.0	
			1991-11-01	1992-10-31	2 832.8	1 036.8	
		Maximum permitted at Monchy, Sask. as part of combined Huntingdon/ Kingsgate/Monchy volumes	1989-11-01	1990-10-31	1 416.4	517.0	
			1990-11-01	1991-10-31	1 416.4	517.0	
			1991-11-01	1992-10-31	1 416.4	517.0	

a - This licence authorizes an export of natural gas at Huntingdon, B.C. for storage in the U.S. and for subsequent import through exchange arrangements with other exporters.

b - This licence authorizes an export of natural gas near Sprague, Manitoba for import near Rainy River, Ont.

c - This licence authorizes the export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.

d - This licence authorizes an export of natural gas near Emerson, Manitoba for import near Sault Ste-Marie and Sarnia, Ont., to serve the eastern Canadian Market.

N/S Not Specified

Gas

5. Licences and Long-Term Orders to Import Natural Gas as at 31 December 1989

Importer	Licence or Order Number	Point of Import	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
Canadian Western Natural Gas Company Limited	GO-117-88	Coutts, Alta.	1989-01-01	2005-12-31	30.0	N/S	N/S
ICG Transmission Holdings Ltd.	GL-30(a)	Rainy River, Ont.	1970-11-01	1995-10-31	1 321.8	344.0	8 498.1
Many Islands Natural Gas (Canada) Limited	GU-5(b)	Willow Creek, Sask.	1972-03-15	1992-10-31	4 249.2	1 274.8	18 951.3
TransCanada PipeLines Limited	GL-21(c)	Sault Ste. Marie and Sarnia, Ont.	1968-11-05	1991-10-31	N/S	7 019.1	169 967.0
	GL-42(c)	Sault Ste. Marie and Sarnia, Ont.	1971-04-15	1971-10-31	N/S	232.8	60 316.5
			1971-11-01	1994-10-31	N/S	2 612.3	

a - This licence authorizes an import of natural gas which the licensee has exported near Sprague, Man.
b - This licence authorizes an import of natural gas which the licensee will subsequently export near Emerson, Manitoba, pursuant to Licence GL-44.
c - This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Manitoba. This natural gas serves Canadian markets.
N/S Not specified.

Gas

6. Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1989

Exporter	Licence or Order Number	Points of Export	Points of Import	Term of Licence or Order From	Term of Licence or Order To	Maximum Volumes Annual (m^3)	Maximum Volumes Term (m^3)
PROPANE							
Amoco Canada Petroleum Company Ltd. (Export)	GL-32	Can/US Border (a)	-	1971-01-01	1972-12-31	92 698	4 281 799
				1973-01-01	1973-12-31	569 761	
				1974-01-01	1974-12-31	519 682	
				1975-01-01	1975-12-31	506 190	
				1976-01-01	1976-12-31	483 571	
				1977-01-01	1977-12-31	456 825	
				1978-01-01	1993-12-31	92 698	
				1994-01-01	1994-12-31	77 206	
Dome Petroleum Limited (Export)	GL-31	Can/US Border (a)	-	1971-01-01	1972-12-31	133 254	9 757 486
				1973-01-01	1973-12-31	924 999	
				1974-01-01	1974-12-31	870 078	
				1975-01-01	1975-12-31	847 301	
				1976-01-01	1976-12-31	812 936	
				1977-01-01	1977-12-31	775 793	
				1978-01-01	1978-12-31	744 761	
				1979-01-01	1979-12-31	716 983	
				1980-01-01	1980-12-31	688 571	
				1981-01-01	1981-12-31	656 190	
				1982-01-01	1982-12-31	620 476	
				1983-01-01	1986-12-31	133 254	
				1987-01-01	1987-12-31	143 809	
				1988-01-01	1988-12-31	193 016	
				1989-01-01	1989-12-31	196 984	
				1990-01-01	1990-12-31	169 047	
				1991-01-01	1991-12-31	165 873	
				1992-01-01	1992-12-31	165 079	
				1993-01-01	1993-12-31	162 098	
				1994-01-01	1994-12-31	103 968	
ETHANE							
Dome Petroleum Limited (Export)	GL-51 (b)(c)	Export-Elmore, Sask. Re-Export - Windsor, Ont.	Windsor, Ont.	1979-06-21	1979-12-31	1 287 000	19 069 000
				1980-01-01	1980-12-31	1 090 000	
				1981-01-01	1981-12-31	935 000	
				1982-01-01	1982-12-31	1 114 000	
				1983-01-01	1983-12-31	1 241 000	
				1984-01-01	1984-12-31	1 424 000	
				1985-01-01	1985-12-31	2 000 000	
				1986-01-01	1986-12-31	2 731 000	
				1987-01-01	1987-12-31	2 304 000	
				1988-01-01	1988-12-31	1 891 000	
				1989-01-01	1989-12-31	1 301 000	
				1990-01-01	1990-12-31	765 000	
				1991-01-01	1991-12-31	602 000	
				1992-01-01	1992-12-31	280 000	
				1993-01-01	1993-12-31	104 000	

Gas

6. (cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1989

Exporter	Licence or Order Number	Points of Export	Points of Import	Term of Licence or Order From	Term of Licence or Order To	Maximum Volumes Annual (m^3)	Maximum Volumes Term (m^3)
ETHYLENE						**Kilograms**	
Dow Chemical of Canada Limited (Export)	EYL-1-76 (d)	Elmore, Sask. Sarnia, Ont. Windsor, Ont.	Sarnia, Ont. Windsor, Ont.	1980-01-01	1989-12-31	158 757 340	1 587 573 400
Dow Chemical of Canada Limited (Export/Import)	EYL-2-76 (d)	Elmore, Sask.	Windsor, Ont.	1978-01-01	1997-12-31	181 438 810	N/S

a - For each licence or order the Canada/US Border export points include one or more of the following ports: Elmore, Sask., Gretna, Man., Sarnia and Windsor, Ont.

b - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.

c - Authorized exports of ethane in each year during the period 1982-01-01 to 1985-12-31 shall be reduced by the equivalent quantity of "make-up" volumes exported under Licence GL-47 which is in excess of 392 728 m^3.

d - This is an export licence which authorizes the export of ethylene at Elmore, Sask., and at Sarnia and Windsor, Ontario. All or a portion of the quantity of ethylene exported at Elmore, Sask., may be imported at Sarnia and Windsor, Ontario for subsequent re-export at Sarnia and Windsor, Ont.

N/S Not specified

Gas

7. Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
AEC Oil and Gas Company	GO-98-89	.0	.1	.1
Alberta and Southern Gas Co. Ltd.	GL-99	10 819.9	10 856.9	32 539.3
Amoco Canada Petroleum Company Ltd.	GL-112	.0	27.9	27.9
	GO-104-86	2.0	0	14.4
	GO-67-87	5.3	.0	5.3
	GO-80-88	28.6	143.4	172.1
	GO-122-89	.0	1.4	1.4
	GO-124-89	.0	25.6	25.6
Amoco Canada Resources Limited	GL-108	.0	49.2	49.2
	GO-14-86	.0	.0	.5
	GO-101-86	98.1	.0	212.1
	GO-15-87	8.2	17.8	42.1
	GO-16-87	54.9	.0	94.1
	GO-66-87	4.6	.0	4.6
	GO-94-88	23.4	101.8	125.1
	GO-95-88	.0	1.9	1.9
	GO-16-89	.0	81.2	81.2
BC Gas Inc.	GO-59-89(a)	.0	60.6	60.6
Bonanza Resources Ltd.	GO-58-86	0	.0	15.0
	GO-59-86	0	.0	17.0
Bonus Gas Processors Corp.	GO-78-86	13.8	.0	78.9
	GO-109-87	2.8	0	2.8
	GO-88-88	.2	13.1	13.3
BP Resources Canada Limited	GO-68-88	26.5	7.0	33.5
	GO-24-89	0	12.0	12.0
British Columbia Petroleum Corporation	GO-12-89	0	457.4	457.4
	GO-104-89	0	124.1	124.1
	GO-123-89	0	281.5	281.5
Brymore Gas (Canada) Inc.	GO-80-86	0	0	12.3
	GO-88-89	0	9.4	9.4
Canadian Hydrocarbons Limited	GO-14-87	21.0	0	113.7
	GO-10-88	327.2	23.1	350.3
	GO-9-89	0	269.5	269.5
Canadian Occidental Petroleum Ltd.	GO-102-87	4.9	.0	4.9
	GO-18-88	33.2	103.3	136.5
Canadian-Montana Pipe Line Company	GL-17	0	.0	3 035.3
	GL-25	0	.0	3 516.3
	GL-72	221.1	275.4	496.5
	GO-3-79	4.8	4.7	32.6

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
Canterra Energy Ltd.	GL-113	.0	37.3	37.3
	GO-10-87	.1	.0	9.0
	GO-108-87	21.4	.0	21.4
	GO-14-88	18.8	51.7	70.6
	GO-70-89	.0	1.9	1.9
Carvin Natural Gas Marketing Ltd.	GO-114-88	8.0	92.9	100.9
Cherhill Resources Limited	GO-22-88	27.7	.0	27.7
Chevron Canada Resources Limited	GO-105-87	.8	.0	.8
	GO-21-88	1.4	.0	1.4
	GO-43-88	3.4	.0	3.4
	GO-86-88	3.7	.0	3.7
Consolidated Natural Gas Limited	GL-75	1 106.2	1 003.5	2 295.8
	GO-89-86	36.0	.0	246.4
	GO-92-86	97.6	.0	308.2
Czar Resources Ltd.	GO-30-86	24.5	.0	100.5
	GO-28-88	95.5	80.2	175.6
Dekalb Petroleum Corporation	GO-57-89	.0	48.2	48.2
Encor Energy Corporation Inc.	GO-107-87	1.1	.0	1.1
Esso Resources Canada Limited	GL-82	.0	.0	1 810.5
	GO-103-87	155.7	.0	155.7
	GO-26-88	36.1	.0	36.1
Esso Resources Canada Ltd. and Transco Energy Mark. Co.	GO-38-88	455.3	104.2	559.4
	GO-28-89	.0	235.4	235.4
	GO-117-89	.0	64.2	64.2
Grand Valley Gas Company	GO-112-89	.0	4.4	4.4
	GO-142-89	.0	2.1	2.1
Hadson Canada Inc.	GO-90-87	1.6	.0	1.6
ICG Transmission Holdings Ltd.	GL-28	.0	.0	129.7
	GL-29	.0	.0	2 690.3
	GL-30(b)	200.0	197.8	4 811.7
	GO-82-87	7.3	.0	9.4
	GO-83-87	88.9	.0	106.3
	GO-96-88	20.6	87.3	107.8
	GO-99-88	2.5	7.8	10.4
	GO-113-89	.0	3.4	3.4
	GO-115-89	.0	23.6	23.6
Imperial Oil Limited	GO-84-86(c)	79.3	.0	204.2
	GO-91-88(c)	.0	100.6	100.6

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
KannGaz Producers Ltd.	GL-77	46.5	117.5	172.6
	GO-34-89	.0	7.8	7.8
	GO-75-89	.0	11.4	11.4
KM Gas Company	GO-81-86	3.4	.0	37.2
	GO-37-89	.0	.8	.8
Koch Hydrocarbons Canada	GO-101-87	5.5	.0	5.5
Many Islands Natural Gas (Canada) Limited	GL-44(d)	421.0	410.2	6 976.2
Mobil Oil Canada	GO-9-88	2.0	.0	2.0
	GO-11-88	480.3	656.6	1 136.9
	GO-102-88	.0	3.8	3.8
	GO-139-89	.0	2.0	2.0
Niagara Gas Transmission Limited	GL-78	233.1	239.0	518.3
Norcen Energy Resources Limited	GL-115	.0	39.2	39.2
	GO-51-89	.0	4.3	4.3
North Canadian Oils Limited	GO-65-88	9.3	56.2	65.4
	GO-69-89	.0	16.2	16.2
Northcan Energy Inc.	GO-30-88	6.1	18.8	24.9
	GO-3-89	.0	379.8	379.8
Northridge Petroleum Marketing, Inc.	GO-79-89(e)	.0	13.2	13.2
	GO-80-89	.0	.2	.2
Northwest Pacific Energy Marketing Inc.	GO-115-88	4.7	109.1	113.9
Pan-Alberta Gas Ltd.	GL-96	2 148.6	.0	9 820.5
	GL-97	3 082.9	2 806.8	13 670.3
	GL-106	414.8	2 480.2	2 895.0
	GO-48-87	3 703.2	1 954.6	7 711.3
	GO-8-88	311.2	58.1	369.3
	GO-67-89	.0	2 129.6	2 129.6
Petro-Canada Inc.	GO-22-87	.0	.0	4.7
	GO-17-88	269.8	.0	269.8
	GO-113-88	.0	60.2	60.2
	GO-25-89	.0	187.1	187.1
Placer Cego Petroleum	GO-19-87	4.5	.0	31.3
	GO-115-87	1.8	.0	1.8
	GO-15-88	37.9	51.7	89.6
	GO-15-89	.0	13.6	13.6

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
Poco Petroleums Ltd.	GO-87-86	477.8	.0	817.0
	GO-38-86	19.9	.0	29.9
	GO-72-87	4.0	43.9	49.5
	GO-74-87	124.0	.0	135.9
	GO-110-88	60.2	560.3	620.5
	GO-53-89	.0	21.7	21.7
ProGas Limited	GL-98	1 589.0	1 718.1	4 059.1
	GO-85-87	192.3	.0	322.0
	GO-24-88	3.4	.0	3.4
	GO-118-89	.0	47.5	47.5
	GO-127-89	.0	3.7	3.7
Sceptre Resources Limited	GO-81-89	.0	.1	.1
Shell Canada Limited	GL-100	63.5	194.7	264.5
	GL-119	.0	44.9	44.9
	GO-105-86	229.6	.0	454.3
	GO-4-88	.1	.0	.1
	GO-16-88	1.3	21.9	23.2
	GO-25-88	96.1	324.7	420.9
	GO-119-88	.0	140.5	140.5
	GO-63-89	.0	2.9	2.9
Suncor Inc.	GO-112-87	78.7	65.9	144.6
	GO-29-89	.0	201.5	201.5
	GO-39-89	.0	.1	.1
Tarpon Gas Marketing Ltd.	GO-2-88	1.1	.0	1.1
TransCanada PipeLines Limited	GL-18	.0	.0	20 552.8
	GL-19	156.5	131.3	2 522.3
	GL-20	588.3	.0	14 384.7
	GL-21(f)	6 821.6	6 680.4	124 227.2
	GL-37	1 252.9	170.3	29 194.0
	GL-38	.0	.0	6 770.7
	GL-39	.0	.0	915.0
	GL-42(f)	2 538.8	2 486.3	40 070.1
	GL-43	.0	451.4	1 787.3
	GL-83	915.5	943.0	3 100.3
	GL-84	19.1	36.0	55.0
	GL-86	.0	.8	.8
	GL-87	.0	.8	.8
	GL-89	.0	.0	604.0
	GL-121	.0	44.7	44.7
	GO-40-86	190.1	.0	374.5
	GO-103-86	208.6	.0	689.9
	GO-27-87	6.8	.0	40.0
	GO-37-87	2 507.8	1 332.6	4 503.2
	GO-111-87	363.4	280.7	644.1
	GO-23-88	111.4	26.6	138.0
	GO-11-89	.0	162.1	162.1
	GO-14-89	.0	11.4	11.4

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
TransCanada PipeLines Limited(cont'd)	GO-50-89	.0	2 734.7	2 734.7
	GO-108-89	.0	46.1	46.1
	GO-147-89	.0	.8	.8
Unigas Corporation	GO-19-89	.0	66.9	66.9
	GO-93-89	.0	171.8	171.8
Union Enterprises Ltd.	GO-4-87(g)	.0	.0	3.9
Unocal Canada Limited	GO-75-88	6.1	.0	6.1
Wainoco Oil Corporation	GO-55-87	42.8	0	46.1
	GO-120-89	0	18.2	18.2
Westcoast Energy Inc.	GL-41	1 909.1	1 545.0	80 071.8
Westcoast Energy Marketing	GO-44-89	0	37.4	37.4
	GO-116-89	.0	166.5	166.5
Western Gas Marketing Limited	GO-63-88	28.2	.1	28.4
GROSS EXPORTS		**45 988.7**	**47 861.0**	**445 777.5**
NET EXPORTS(h)		**35 928.0**	**37 911.9**	**269 309.9**

a - This order authorizes an export of natural gas for storage in the U.S. and for subsequent import through exchange arrangements with other exporters.

b - This licence authorizes an export of natural gas near Sprague, Man. for import near Rainy River, Ont.

c - This order authorizes an export of natural gas near Emerson, Man. in exchange for an import of ethane by Dome Petroleum Limited and Amoco Canada Petroleum Company Ltd. near Sarnia, Ont.

d - This licence authorizes an export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.

e - This order authorizes an export of natural gas for subsequent import on order GO-92-89.

f - This licence authorizes an export of natural gas near Emerson, Man. for import near Sault Ste. Marie and Sarnia, Ont. to serve eastern Canadian markets.

g - This order authorizes an export of natural gas which was imported on order GO-3-87 for storage in Canada.

h - Excludes volumes of licences/orders under footnotes.

Gas

8. Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
Access Energy Corporation	GO-102-89	.0	3.5	3.5
Atcor Ltd.	GO-89-89	.0	14.9	14.9
BC Gas Inc.	GO-105-88(a)	.2	59.8	60.0
	GO-30-89(a)	.0	.7	.7
	GO-59-89(b)	.0	1.1	1.1
Border Utilities Ltd.	GO-8-86	.7	.0	2.1
Canadian Western Natural Gas Company Limited	GO-56-87	.2	.0	.2
	GO-70-88	.2	1.0	1.2
	GO-117-88	.0	.8	.8
	GO-87-89	.0	.5	.5
ICG Transmission Holdings Ltd.	GL-30(c)	200.0	197.8	4 811.7
ICG Utilities (Ontario) Ltd.	GO-103-89	.0	15.1	15.1
Many Islands Natural Gas (Canada) Limited	GLI-5(d)	425.6	416.4	7 080.4
Natural Resource Gas Limited	GO-77-89	.0	3.4	3.4
Northridge Petroleum Marketing, Inc.	GO-45-88	.9	.0	.9
	GO-92-89(e)	.0	13.2	13.2
St. Clair Pipelines Ltd.	GO-71-88	35.8	20.6	56.4
	GO-109-88	.0	58.8	58.8
	GO-47-89	.0	60.0	60.0
	GO-111-89	.0	20.4	20.4
Tarpon Gas Marketing Ltd.	GO-94-89	.0	18.5	18.5
The Consumers' Gas Company Ltd.	GO-40-88	8.1	.0	8.1
	GO-57-88	27.2	.0	27.2
	GO-40-89	.0	8.8	8.8
	GO-41-89	.0	29.2	29.2
	GO-97-89	.0	46.3	46.3
TransCanada PipeLines Limited	GL-21(f)	6 821.6	6 680.4	124 168.3
	GL-42(f)	2 538.8	2 486.3	40 142.6
Unigas Corporation	GO-121-89	.0	3.2	3.2
Union Enterprises Ltd.	GO-3-87(g)	.0	.0	3.9
	GO-121-87	54.0	.0	54.0
	GO-41-88	51.7	.0	51.7
Union Gas Limited	GO-65-87	.0	.0	56.7
	GO-84-87	.6	.0	14.3
	GO-39-88	60.0	0	60.0
	GO-50-88	60.0	0	60.0
	GO-61-88	1.3	.0	1.3

Gas

8. (cont'd) Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
Union Gas Limited (Cont'd)	GO-66-88	60.0	.0	60.0
	GO-77-88	60.0	.0	60.0
	GO-100-88	60.0	.0	60.0
	GO-103-88	60.0	.0	60.0
	GO-118-88	3.5	56.5	60.0
	GO-7-89	.0	44.4	44.4
	GO-31-89	.0	60.0	60.0
	GO-45-89	.0	60.0	60.0
	GO-52-89	.0	60.0	60.0
	GO-60-89	.0	60.0	60.0
	GO-61-89	.0	60.0	60.0
	GO-62-89	.0	1.1	1.1
	GO-66-89	.0	60.0	60.0
	GO-71-89	.0	60.0	60.0
	GO-76-89	.0	60.0	60.0
	GO-86-89	0	45.6	45.6
	GO-91-89	.0	60.0	60.0
	GO-95-89	.0	22.9	22.9
	GO-110-89	.0	53.2	53.2
	GO-136-89	.0	4.6	4.6
Western Gas Marketing Limited	GO-59-88	69.9	23.4	93.3
	GO-101-88	.0	51.0	51.0
	GO-90-89	.0	12.4	12.4
GROSS IMPORTS		**10 600.2**	**11 015.8**	**178 127.8**
NET IMPORTS (h)		**614.0**	**1 173.3**	**1 859.1**

a - This order authorizes an import of natural gas at Huntingdon, B.C. previously exported by Westcoast on behalf of the order holder.
b - This order authorizes the import of natural gas at Huntingdon, B.C. which the holder has previously exported for storage in the U.S. The import occurs through exchange arrangements with other exporters.
c - This licence authorizes an import of natural gas which the licensee has previously exported near Sprague, Man.
d - This licence authorizes an import of natural gas for subsequent export near Emerson, Man. pursuant to licence GL-44.
e - This order authorizes an import of natural gas which was previously exported under order GO-79-89.
f - This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Man. This natural gas serves Canadian markets.
g - This order authorizes an import of natural gas for storage in Canada for subsequent export near Windsor, Ont. on order GO-4-87.
h - Excludes volumes of licences/orders under footnotes.

Gas

9. Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Exporter	Licence or Order Number	1988 Actual	1989 Preliminary
PROPANE			
Amoco Canada Petroleum Company Limited	GL-32	92 697	92 698
Dome Petroleum Limited	GL-31	193 016	196 984
NET EXPORTS (c)		**285 713**	**289 682**
ETHANE			
Dome Petroleum Limited	GL-51(a)	871 841	744 248
GROSS EXPORTS		**871 841**	**744 248**
NET EXPORTS (c)		**0**	**0**
		Kilograms	
ETHYLENE			
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 (b)	151 660 454	161 089 355
GROSS EXPORTS		**151 660 454**	**161 089 355**
NET EXPORTS (c)		**0**	**0**

a - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.

b - This licence/order authorizes an export of product for subsequent import.

c - Excludes volumes of licences under footnotes .

Gas

10. Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1988 Actual	1989 Preliminary
ETHANE			
Dome Petroleum Limited	GL-51(a)	917 227	623 021
	GO-8-89 (c)	N/A	100 337
	GO-64-89(c)	N/A	93 532
	GO-44-87 (c)	N/A	N/A
	GO-114-87 (c)	119 991	N/A
	GO-60-88 (c)	119 241	N/A
GROSS IMPORTS		**1 156 459**	**816 890**
		Kilograms	
ETHYLENE			
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 (b)	151 660 454	161 089 355
GROSS IMPORTS		**151 660 454**	**161 089 355**
NET IMPORTS (d)		**0**	**0**

a - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.

b - This licence/order authorizes an import of product which has been previously exported.

c - This order authorizes an import of ethane at Sarnia, Ont. in exchange for natural gas exported at Emerson, Man. by Imperial Oil Limited.

d - Excludes volumes of licences /orders under footnotes.

N/A Not Applicable

Gas

11. Total Net Exports of Propane and Butanes (Cubic Metres)

Exporter	Propane		Butanes	
	1988 Actual	1989 Preliminary	1988 Actual	1989 Preliminary
Amoco Canada Petroleum Company Ltd. (a)	424 767	1 921 000	399 990	1 161 900
Atlantic Speedy Propane Limited	2 684	2 400	N/A	N/A
Burnwell Gas of Canada Ltd.	40 934	31 200	N/A	N/A
Canadian Enterprise Gas Products Ltd.	10 379	20 000	30 884	40 500
CanPet Marketing Ltd.	14 078	6 400	11 154	9 200
CanStates Energy	65 112	35 000	129 058	193 300
Chevron Canada Resources	29 233	5 100	1 588	4 100
Commonwealth Petroleum Co.	25 293	30 000	N/A	N/A
Consumers' Co-Operative Refineries Ltd.	3 038	100	6 636	0
Dome Petroleum Limited (a)	1 309 277	N/A	772 540	N/A
Dominion Propane Corp.	112	0	0	0
Elbow River Resources Ltd.	0	100	9 649	1 200
Elgin Resources Limited	6 622	1 730	122	0
Energy Transportation Inc.	31 640	15000	18 511	20 400
Enron Liquids Marketing Canada Ltd.	14 364	12 900	12 488	8 800
Ferrell Petroleum Inc.	31 746	3 967	N/A	N/A
Ferrell Gas	N/A	1 588	N/A	N/A
Gas Supply (Minneapolis) Ltd.	N/A	0	N/A	N/A
Gibson Gas Liquids Ltd.	8 546	3 100	15 106	2 400
Gulf Canada Resources Ltd.	65 151	84 000	58 805	104 000
Home Oil Company Limited	20 086	46 200	20 321	68 600
Husky Oil Operations Ltd.	0	0	0	0
ICG Liquid Gas Ltd.	46 272	22 200	0	0
Imperial Oil Limited	213 144	238 500	394 671	274 300
Irving Oil Limited	5 516	0	20 039	0
Kildair Service Ltd.	367	0	0	0
Koch Hydrocarbon Canada	3 938	700	28 599	20 000
L.H.H. Enterprises Ltd.	580	0	0	0
L.P.G. Resources Canada Inc.	120	0	22 936	2 000
M-P. Oils Ltd	31 780	54 800	1 609	11 400
Mobil Oil Canada	77 106	70 100	115 869	51 800
Newfoundland Processing Ltd.	0	0	0	0
NGL Supply (1985) Ltd.	19 444	26 700	0	10 500
Olco Petroleum Group Inc.	0	0	0	N/A
PanCanadian Gas Products Ltd. (a)	111 389	137 500	134 211	94 700
Petro-Canada Hydrocarbons Inc.	604 134	534 700	319 757	290 500
Petrogas Marketing Ltd.	7 601	13 900	7 850	5 300
Petromont Inc.	8 381	25 300	13 448	5 500
Petrowest Petroleum Ltd.	118 188	43 100	14 920	16 300
Phillips 66 Company	N/A	0	N/A	N/A
Rivecal Energy Ltd.	0	0	0	0
Shell Canada Products Ltd.	167 289	166 700	226 940	129 300
Stittco Energy Ltd.	5 527	8 100	2 050	3 000
Suncor Inc.	0	3 200	39 708	5 700
Superior Propane Inc.	0	0	N/A	N/A
Texaco Canada Inc.	58 541	48 500	38 188	32 300

Gas

11. (cont'd) Total Net Exports of Propane and Butanes (Cubic Metres)

	Propane		Butanes	
Exporter	1988 Actual	1989 Preliminary	1988 Actual	1989 Preliminary
Texaco Producing Inc.	15 396	1 400	N/A	N/A
Turbo Resources Ltd.	N/A	0	N/A	0
Unocal Canada Ltd.	5 808	1 300	9 608	10 500
Ultramar Canada Inc.	0	0	N/A	0
Westcan Energy Ltd.	43 038	21 500	7 446	3 500
TOTAL	**3 693 641**	**3 637 985**	**2 884 701**	**2 581 000**

a - Includes net export volumes under licences.
N/A Not Applicable

Gas

12. Natural Gas Volumes Authorized for Export (Millions of Cubic Metres)

New Licences Issued and Extensions to Existing Licences	Volume 1987	Number of Years	Volume 1988	Number of Years	Volume 1989	Number of Years
Alberta and Southern Gas Co. Ltd.					116 385.0 (a)	11
Alberta Northeast Gas Ltd. and AEC Oil and Gas Company	2 714.0	15				
Alberta Northeast Gas Ltd. and ATCOR Ltd.	5 428.0	15				
Alberta Northeast Gas Ltd. and ProGas Limited	10 236.0	15				
Alberta Northeast Gas Ltd. and TransCanada PipeLines Limited	42 646.0 (a)	15				
Amoco Canada Petroleum Co. Ltd.					3 856.0	15
					4 778.0	14
B.C. Gas Inc.					184.0	3
Canadian Hunter Explorations Ltd.			3 381.0	20		
Canterra Energy Ltd.					2 099.1	14
					2 246.4	15
Dome Petroleum Limited			1 504.0	12		
Esso Resources Canada Ltd.					144 000.0	20
Gulf Canada Resources Ltd.					91 000.0	20
ICG Transmission Holdings Ltd.					3 150.0 (b)	15
Norcen Energy Resources Limited					2 875.0	12
Pan-Alberta Gas Ltd.			59 719.2 (c)	24		
Poco Petroleums Ltd.					5 558.8	11
ProGas Limited	10 340.0	20	5 170.0 (a)	20	15 665.3 (a)	15
					23 315.0	6
Shell Canada Limited					2 234.0 (d)	14
					2 250.0 (d)	15
					25 000.0	20
TransCanada PipeLines Limited			5 443.2 (a)	21	2 326.5	14
					4 146.5	15
					6 307.0	7

a - Does not include any incremental volumes.
b - Export volumes authorized on condition of re-import.
c - Only 45.6 10^9 m^3 represents incremental volumes.
d - Of the total 4484 10^6 m^3 authorized under the two licences, 3284 10^6 m^3 is incremental volumes.

Electricity

1. Certificates Issued During 1989 Approving International Power Lines

No Certificates were issued in 1989

Electricity

2. Orders Issued During 1989 Relating to International Power Lines

Applicant	Order No.	Issued	Facilities
Hydro-Québec	XE-1-89	89-07-20	One international power line extending from the distribution transformer designated as M2KIC, to a point on the international boundary line located in the municipality of Saint-Théophile. This single-circuit single-phase line, designated LIN 234, operates at a nominal voltage of 120/240 volts .
James R. McMurrich	XE-2-89	89-12-15	One international power line extending from the boundary line between Canada and the United States of America near Sundown Island, Ontario. This line will be used to import electricity from Niagara Mohawk Power Corporation to supply electric service to Sundown Island. This single-circuit single-phase line operates at a nominal voltage of 7 6 kV

Electricity

3. Licences Issued During 1989 Relating to the Export of Electricity

Applicant	Licence No.	Class	Megawatts	Annual Gigawatt Hours	Term From	Term To	Hearing Commenced	Issued
Hydro-Québec	EL-178	Firm	800	3 000	91-06-23	98-10-31	89-05-16	89-07-25

Electricity

4. Orders Issued During 1989 Relating to the Export of Electricity

4(a) Orders issued pursuant to Section 7 of the Part VI Regulations.

Applicant	Order No.	Class	Kilowatts	Annual Megawatt Hours	Term From	Term To	Issued
Boise Cascade Canada Ltd.	ELO-265	Interruptible	-	175 000	89-07-01	92-06-30	89-06-08
Canadian Niagara Power Company Limited	ELO-256	Firm	45 000	32 850	89-01-26	89-10-31	89-01-26
	ELO-257	Interruptible	-	500 000	89-01-26	89-10-31	89-01-26
	ELO-269	Carrier Transfer	50 000	250 000	89-11-01	92-10-31	89-09-28
	ELO-270	Interruptible	-	200 000	89-11-01	92-10-31	89-09-28
Cornwall Electric	ELO-264	Carrier Transfer	-	50 000	89-07-01	89-10-31	89-05-25
	ELO-267	Interruptible	-	30 000	89-11-01	92-10-31	89-09-28
	ELO-268	Carrier Transfer	-	30 000	89-11-01	92-10-31	89-09-28
The Manitoba Hydro-Electric Board	ELO-260	Firm	12	15	89-08-01	92-07-31	89-05-08
New Brunswick Power	ELO-258	Firm	60 000	350 400	89-03-01	89-10-31	89-02-28
	ELO-259	Firm	15 000	24 240	89-04-01	89-10-31	89-03-30
	ELO-261	Firm	48 000	211 968	89-05-01	89-10-31	89-04-28
	ELO-262	Firm	12 000	52 992	89-05-01	89-10-31	89-04-28
	ELO-263	Firm	27 000	63 960	89-04-01	89-09-30	89-04-28
	ELO-266	Firm	25 000	73 200	89-08-01	89-11-30	89-07-27
	ELO-271	Firm	60 000	43 200	89-11-01	89-11-30	89-10-27
	ELO-272	Firm	60 000	43 200	89-11-01	89-11-30	89-10-27

4(b) Amending orders issued relating to export licences or orders

Applicant	Order No.	Issued	Comments
British Columbia Hydro and Power Authority	AO-3-EL-162	89-03-28	Amendment extending the term of the licence to 30 September 1990
Hydro-Québec	AO-1-EL-168	89-10-26	Amendment authorizing export over any international power line authorized by the Board.
Canadian Niagara Power Company Limited	AO-1-ELO-256	89-09-28	Amendment extending the term of the licence by one month
	AO-1-ELO-257	89-09-28	Amendment extending the term of the licence by one month

Electricity

5. Exports (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export ($)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
NEW BRUNSWICK								
Fraser Inc.	ELO-214	400 000	--	305 310	--	--	17 029 998	--
Maine and New Brunswick Electrical Power Company, Limited	EL-177	200 000	--	76 423	--	--	2 296 864	--
New Brunswick Power	EL-137	876 000	--	827 160	--	- 7 293	45 318 170	--
	EL-138	876 000	--	827 160	--	- 7 293	49 763 206	--
	EL-139	92 000	--	53 542	--	- 2 918	3 346 874	--
	EL-140	--	6 482 400(b)	--	1 962 137	- 1 748	--	64 844 839
	EL-141	1 226 400	--	--	--	190 523	--	--
	EL-142	140 000	--	--	--	--	--	--
	EL-143	--	300 000	--	88 197	358	--	3 472 828
	EL-144	250 000	--	--	--	17 904	--	--
	EL-145	--	179 000	--	4 874	- 1 684	--	182 608
	EL-150	1 138 000	--	206 790	--	- 1 823	12 440 806	--
	ELO-228	250 000	--	--	--	--	--	--
	ELO-244	--	--	--	--	--	--	--
to	EL0-246	445	--	286	--	--	25 101	--
	ELO-247	400 000	--	46 140	--	--	5 727 804	--
	ELO-250	400 000	--	8 640	--	--	2 879 639	--
	ELO-258	350 400	--	34 380	--	--	4 321 147	--
	ELO-259	24 240	--	2 209	--	--	361 629	--
	ELO-261	211 968	--	1 739	--	--	1 517 513	--
	ELO-262	52 992	--	435	--	--	381 209	--
	ELO-263	63 960	--	8 034	--	--	838 463	--
	ELO-266	73 200	--	213	--	--	458 000	--
	ELO-271	43 200	--	180	--	--	265 353	--
	ELO-272	43 200	--	180	--	--	265 353	--
TOTAL				**2 398 821**	**2 055 208**	**186 026**	**147 237 129**	**68 500 275**

Electricity

5. (cont'd) Exports (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export ($)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
QUEBEC								
Hydro-Québec	EL-96	3 000 000	--	3 000 000	--	--	94 869 179	--
	EL-151	--	11 000 000	--	303 714	--	--	8 695 585
	EL-152	--	23 564 000(c)	--	38 261	62 753	--	914 038
	EL-153	--	23 564 000(c)	--	71 611	- 336 160	--	4 627 591
	EL-154	11 220 000	--	105 047	--	--	3 307 563	--
	EL-156	25 000	--	--	--	--	--	--
	EL-165	--	3 000 000	--	--	31 729	--	--
	EL-166	--	4 000 000	--	349 364	--	--	8 654 209
	EL-167	--	6 920 000(d)	--	11 859	- 26 674	--	1 146 571
	EL-168	1 314 000	--	1 011 679	--	--	45 492 077	--
	EL-169	--	1 752 000(e)	--		358	--	
	EL-171	230 600	--	81 904	--	--	3 766 169	--
	EL-172	657 000(f)	--	21 194	--	--	957 228	--
	EL-175	438 000	--	410 560	--	--	9 146 933	--
	ELO-223	--	946 000(g)	--	1 053	--	--	116 887
	ELO-224	400 000	--	--	--	--	--	--
	ELO-220 to ELO-222 and ELO-230 to ELO-237	3 597	--	897	--	--	52 166	--
	ELO-254	51 300	--	47 113	--	--	1 986 479	--
	ELO-255	400 000	--	251 564	--	--	10 427 628	--
TOTAL				**4 929 958**	**775 862**	**- 267 994**	**170 005 422**	**24 154 881**

Electricity

5. (cont'd) Exports (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export ($)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
ONTARIO								
Boise Cascade	ELO-211 *	--	70 000	--	75	--	--	2 605
Canada Ltd.	ELO-265	--	175 000	--	--	--	--	--
Canadian Niagara	EL-161 *	--	500 000	--		2 617	--	
Power Company	ELO-253 *	--	328 500	--	232 729	9 124	--	7 800 798
Limited	ELO-256 *	32 850		--	--	--	--	--
	ELO-257 *	--	500 000	--	--	1 445	--	--
	ELO-269	--	250 000	--	--	48 651	--	--
	ELO-270	--	200 000	--	9 715	2 380	--	296 579
The Canadian Transit Company	ELO-239	25	--	24	--	--	--	--
Cornwall Electric	EL-158 *	--	250 000	--	--	57 453	--	--
	EL-159 *	--	150 000	--	2 223	--	--	58 989
	EL-160 *	--	150 000	--	--	38 514	--	--
	ELO- 229 *	--	300 000	--	249 615	--	--	6 541 654
	ELO- 264 *	--	50 000	--	--	5 193	--	--
	ELO- 267	--	30 000	--	38	--	--	1 089
	ELO- 268	--	30 000	--	--	--	--	--
The Detroit and Windsor Subway Company	ELO-252	2 000	--	1 225	--	--	--	--
Ontario Hydro	EL-32	15 000	--	904	--	--	1 808	--
	EL-134	--	10 000 000	--	--	1 361 089	--	--
	EL-135	10 500 000	--	328 236	--	--	13 854 953	--
	EL-136	--	25 000 000(h)	--	1 889 529	72 920	--	72 984 579
	ELO-238	200	--	21	--	--	1 602	--
TOTAL				**330 410**	**2 383 924**	**1 599 386**	**13 858 363**	**87 686 293**
MANITOBA								
The Manitoba Hydro-	EL-97	--	1 800 000	--	365 276	--	--	4 327 276
Electric Board	EL-98	876 000	--	97 075	--	--	4 667 451	--
	EL-99	262 800	--	143 220	--	--	2 694 822	--
	EL-100	800 000	--	--	--	--	--	--
	EL-101	2 500 000	--	-	--	--	--	--
	EL-102	249 000	--	--	--	--	--	--
	EL-103	--	12 000 000(i)	--	620 045	56 065	--	12 699 350
	ELO-241	--						
and	ELO-260	7 899	--	2 549	--	--	111 455	--
TOTAL				**242 844**	**985 321**	**56 065**	**7 473 728**	**17 026 626**

Electricity

5. (cont'd) Exports (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export ($)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
SASKATCHEWAN								
Saskatchewan	EL-118	438 000(j)	--	--	--	31 800	--	--
Power Corpoaration	EL-119	--	876 000(k)	--	9 818	30 094	--	181 644
	EL-120	876 000(k)	--	--	--	--	--	--
TOTAL				--	**9 818**	**61 894**	--	**181 644**
BRITISH COLUMBIA								
British Columbia	EL-162	6 000 000	--	459 376	--	--	11 314 278	--
Hydro and Power	EL-163	--	15 000 000(l)	--	3 523 612	953 410	--	105 568 507
Authority	EL-164	--	3 000 000	--	--	714 113	--	--
	ELO-225	--	--	--	--	--	--	--
and	ELO-251	17 100	--	16 641	--	--	776 633	--
	m	--	--	--	--	323 230	--	--
Cominco Ltd.	ELO-216	50 000	--	--	--	--	--	--
	ELO-217	250 000	--	--	--	--	--	--
	ELO-218	--	1 000 000	--	349 897	680	--	7 573 407
	ELO-219	--	1 000 000	--	--	--	--	--
West Kootenay Power and Light Company, Limited	ELO-227	50	--	8	--	--	496	--
TOTAL				**476 025**	**3 873 509**	**1 991 433**	**12 091 407**	**113 141 914**
TOTAL CANADA(n)				**8 378 058**	**10 083 642**	**3 626 810**	**350 666 049**	**310 691 633**

a - Exchange includes inadvertent and circulating flow, equichange, storage, adjustment transfer, and wheeling or carrier transfer and normally does not have associated revenue.

b - Total exports should not exceed 6 482.4 GW.h less any amounts exported pursuant to another licence or order under which the energy is transmitted over the line authorized by Certificate EC-III-8.

c - Total exports should not exceed 23 564 GW.h less any amounts exported pursuant to another licence under which the energy is transmitted over the lines authorized by Certificates EC-III-15 and EC-10.

d - Total exports should not exceed 6 920 GW.h less any amounts exported pursuant to another licence under which the energy is transmitted over the lines authorized by Certificate EC-III-21.

e - Total exports should not exceed 1 752 GW.h less any amounts exported under Licence EL-168.

f - Total exports should not exceed 657 GW.h less any amounts exported under Licence El-171 and Orders ELO-223 and ELO-224.

g - Total exports should not exceed 946 GW.h less any amounts exported under Licences EL-171, EL-172 and Order ELO-224.

h - Total exports should not exceed 25 000 GW.h less any amounts exported under Licence EL-135.

i - Total exports should not exceed 12 000 GW.h less any amounts exported under Licences EL-97, EL-98, EL-99, EL-100, EL-101 and EL-102.

j - Energy to be returned.

k - Total exports under Licences EL-119 and EL-120 should not exceed 876 GW.h. when combined together.

l - Total exports should not exceed 15 000 GW.h less any amounts exported under Licence EL-162.

m ; Energy exported in accordance with the Skagit River Valley Treaty which is not under the Board's jurisdiction.

n - Excludes $7 112 514 revenue for wheeling, transmission, unit rental and storage transfer charges.

* Expired during 1989.

Electricity

6. Electricity Trade Between Canada and the United States (a) (By Province, Gigawatt Hours)

PROVINCE	REGION / STATE	EXPORT (b)	IMPORT (c)	NET EXPORT (b) - (c)
New Brunswick	Maine	2505	57	2448
	Massachusetts	1862	0	1862
	New Hampshire	89	0	89
Total New Brunswick		**4456**	**57**	**4399**
Quebec	Massachusetts	102	0	102
	Vermont	1868	0	1868
	New England (d)	361	265	96
	New York	3413	998	2415
Total Quebec		**5744**	**1263**	**4481**
Ontario	Vermont	328	0	328
	New York	2331	231	2100
	Michigan	15	5440	-5425
	Minnesota	0	176	-176
Total Ontario		**2674**	**5847**	**-3173**
Manitoba	Minnesota	1122	1122	0
	North Dakota	106	396	-290
Total Manitoba		**1228**	**1518**	**-290**
Saskatchewan	North Dakota	10	57	-47
Alberta	Montana	0	3	-3
British Columbia	Montana	9	0	9
	Washington	1835	0	1835
	Oregon	875	0	875
	California	1597	0	1597
	Other (e)	34	0	34
Total British Columbia		**4350**	**0**	**4350**
TOTAL		**18462**	**8745**	**9717**

Notes: a - Sales and purchases only; excludes exchanges.
b - Sales to the United States.
c - Purchases from the United States.
d - Trade with the New England Power Pool - quantities to each state cannot be accurately determined.
e - Includes Idaho, Nevada and Utah.

Electricity

7. Electricity Trade Between the United States and Canada (a) (By American Region / State, Gigawatt Hours)

REGION / STATE	PROVINCE	IMPORT (b)	EXPORT (c)	NET IMPORT (b) - (c)
New England				
Maine	New Brunswick	2505	57	2448
Massachusetts	New Brunswick	1862	0	1862
	Quebec	102	0	102
New Hampshire	New Brunswick	89	0	89
Vermont	Quebec	1868	0	1868
	Ontario	328	0	328
New England (d)	Quebec	361	265	96
Total New England		**7115**	**322**	**6793**
New York	Quebec	3413	998	2415
	Ontario	2331	231	2100
Total New York		**5744**	**1229**	**4515**
Michigan	Ontario	15	5440	-5425
Midwest				
Minnesota	Ontario	0	176	-176
	Manitoba	1122	1122	0
North Dakota	Manitoba	106	396	-290
	Saskatchewan	10	57	-47
Total Midwest		**1238**	**1751**	**-513**
Western				
Montana	Alberta	0	3	-3
	British Columbia	9	0	9
Washington	British Columbia	1835	0	1835
Oregon	British Columbia	875	0	875
California	British Columbia	1597	0	1597
Other (e)	British Columbia	34	0	34
Total Western		**4350**	**3**	**4347**
TOTAL		**18462**	**8745**	**9717**

Notes: a - Sales and purchases only; excludes exchanges.
b - Purchases from Canada.
c - Sales to Canada.
d - Trade with the New England Power Pool - quantities to each state cannot be accurately determined.
e - Includes Idaho, Nevada and Utah.

Financial Regulation

1. Financial Information - Group 1 Oil Pipeline Companies

(a)

(b)	Cochin		Interprovincial		IPL(NW)		Trans Mountain		Trans-Northern		
1989	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	Total
Revenue Requirement											
Return	11.7	38.4	67.8	24.9	42.4	58.1	13.8	21.9	5.0	18.9	140.7
Depreciation	5.2	17.0	37.6	13.8	14.6	20.0	4.7	7.4	2.0	7.5	64.1
Operating & Mtce.	12.3	40.3	124.6	45.7	5.0	6.8	25.3	40.1	15.5	58.5	182.7
Taxes	1.3	4.3	42.4	15.6	11.0	15.1	19.3	30.6	4.0	15.1	78.0
Total	30.5	100.0	272.4	100.0	73.0	100.0	63.1	100.0	26.5	100.0	465.5
Capitalization of Rate Base											
Debt	N/A (c)	N/A	380.9	61.1	216.0	70.9	48.2	50.0	17.6	46.3	662.7
Preferred	N/A (c)	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Equity	N/A (c)	N/A	242.8	38.9	88.8	29.1	48.2	50.0	20.4	53.7	400.2
Total	48.4	100.0	623.7 (d)	100.0	304.8	100.0	96.4	100.0	38.0	100.0	1,111.3
Return on Common Equity											
Approved	N/A (c)(e)	N/A	32.2	13.25	14.2	16.00	6.7	14.00	2.8	13.75	
Actual	11.7 (f)	24.22	28.0	11.52	14.2	16.00	8.5	17.70	2.9	14.22	
1988	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	Total
Revenue Requirement											
Return	11.3	40.1	70.8	26.1	43.8	56.2	11.1	19.3	4.9	20.5	141.9
Depreciation	5.2	18.4	35.9	13.2	14.8	19.0	3.9	6.8	2.0	8.4	61.8
Operating & Mtce.	10.5	37.2	116.7	43.0	7.0	9.0	24.1	42.0	13.1	54.8	171.4
Taxes	1.2	4.3	48.0	17.7	12.3	15.8	18.3	31.9	3.9	16.3	83.7
Total	28.2	100.0	271.4	100.0	77.9	100.0	57.4	100.0	23.9	100.0	458.8
Capitalization of Rate Base											
Debt	N/A (c)	N/A	378.3	62.0	229.6	72.0	38.5	50.0	18.0	48.6	664.4
Preferred	N/A (c)	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Equity	N/A (c)	N/A	231.4	38.0	89.1	28.0	38.5	50.0	19.0	51.4	431.7
Total	53.7	100.0	609.7 (d)	100.0	316.7	100.0	77.0	100.0	37.0	100.0	1,096.1
Return on Common Equity											
Approved	N/A (c)(e)	N/A	30.7	13.25	14.3	16.00	5.4	14.00	2.6	13.75	
Actual	11.3 (f)	21.12	31.2	13.48	14.3	16.00	6.9	17.87	2.7	14.19	

a - Based on preliminary estimates.

b - Full names of companies are listed in Companies Under National Energy Board Jurisdiction.

c - Not applicable as company is financed on a joint venture basis.

d - Excludes construction work in progress.

e - Not applicable as company is on a complaint basis.

f - Before interest and taxes.

Financial Regulation

2. Financial Information - Group 1 Gas Pipeline Companies

(a)

(b)	Alberta Natural Gas		Foothills		TQM		TransCanada		Westcoast		
1989	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	Total
Revenue Requirement											
Return	2.3	8.3	76.1	44.0	49.4	69.9	321.6	34.3	92.7	33.9	542.1
Depreciation	1.8	6.5	30.6	17.7	13.1	18.5	100.9	10.8	28.7	10.5	175.1
Operating & Mtce.	21.0	75.5	40.6	23.5	6.1	8.6	391.7	41.8	90.0	33.0	549.4
Taxes	2.7	9.7	25.8	14.9	2.1	3.0	124.0	13.2	61.7	22.6	216.3
Total	27.8	100.0	173.1	100.0	70.7	100.0	938.2	100.0	273.1	100.0	1,482.9
Capitalization of Rate Base											
Debt	10.8	65.1	414.9	71.1	277.0	75.0	1,438.5	57.4	477.3	60.7	2,618.5
Preferred	0.0	0.0	0.0	0.0	0.0	0.0	314.9	12.6	33.7	4.3	348.6
Common Equity	5.8	34.9	168.5	28.9	92.4	25.0	751.4	30.0	275.1	35.0	1,293.2
Total	16.6	100.0	583.4	100.0	369.4	100.0	2,504.8 (c)	100.0	786.1 (c)	100.0	4,260.3
Return on Common Equity											
Approved	N/A (d)	N/A	24.0	14.25	12.7	13.75	103.3	13.75	37.8	13.75	
Actual	1.1	18.41	24.0	14.25	13.7	14.79	109.7	14.60	38.1	13.86	
1988	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	Total
Revenue Requirement											
Return	2.1	8.1	69.9	39.1	51.2	70.6	321.2	35.9	87.2	31.6	531.6
Depreciation	2.2	8.5	35.9	20.1	13.3	18.3	95.5	10.7	30.0	10.9	176.9
Operating & Mtce.	18.3	70.9	42.6	23.8	6.1	8.4	305.1	34.1	87.1	31.6	459.2
Taxes	3.2	12.4	30.5	17.0	1.9	2.6	173.8	19.4	71.7	26.0	281.1
Total	25.8	100.0	178.9	100.0	72.5	100.0	895.6	100.0	276.0	100.0	1,448.8
Capitalization of Rate Base											
Debt	10.2	65.0	421.6	72.8	287.0	75.0	1,343.4	55.6	450.7	60.7	2,512.9
Preferred	0.0	0.0	0.0	0.0	0.0	0.0	347.3	14.4	31.9	4.3	379.2
Common Equity	5.5	35.0	157.8	27.2	95.7	25.0	724.6	30.0	259.8	35.0	1,243.4
Total	15.7	100.0	579.4	100.0	382.7	100.0	2,415.3 (c)	100.0	742.4 (c)	100.0	4,135.5
Return on Common Equity											
Approved	N/A (d)	N/A	22.5	14.25	13.2	13.75	96.0	13.25	35.7	13.75	
Actual	1.1	19.56	22.5	14.25	14.1	14.75	96.0	13.25	35.9	13.80	

a - Based on preliminary estimates.

b - Full names of companies are listed in Companies Under National Energy Board Jurisdiction.

c - Excludes construction work in progress.

d - Not applicable as company is on a complaint basis.

Senior Staff of the Board[1]

Office of the Executive Director
Robin D. Glass, Executive Director

Finance and Administration Branch
Wayne Ganim, Director
Information Technology Branch
Don Emmens, Director
Personnel Branch
Jim Thompson, Director
Planning and Review Branch
Claire M.M. Scott, Director

Energy Regulation Directorate
Peter L. Miles, Director General

Economics Branch
Mark D. Segal, Director
Electric Power Branch
Alex N. Karas, Director
Energy Supply Branch
David Collyer, Director[2]
Gas and Oil Branch
Ross M. White, Director

Pipeline Regulation Directorate
John S. Klenavic, Director General

Environment Branch[3]
Peter A. Carr, Director
Financial Regulation Branch[3]
Henry K. Pau, Director
Pipeline Engineering Branch[3]
Ed L.M. Gordon, Director

Law Branch
Sandra K. Fraser, General Counsel

Office of the Secretary
Marie Tobin, Secretary[4]

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1 As of 31 December 1989
2 Appointed in May 1989
3 Branch names changed effective 1 February 1989
4 Appointed in October 1989